ALEKSEYEVA, I.A.; SPASSKIY, S.S.

Investigation of polymers of polydiethylene glycol fumarate and copolymers of polydiethylene glycol fumarate with styrene by means of infrared spectroscopy. Trudy Kom.anal.khim. 13: 356-359 '63. (MIRA 16:5)

1. Institut khimii Ural'skogo filiala AN SSSR.
(Diethylene glycol) (Fumaric acid) (Spectrum, Infrared)

ACCESSION NR: AP4017638 S/0190/64/006/002/0265/0268

AUTHORS: Alekseyeva, I. A.; Semerneva, G. A.; Samarina, L. A.; Bulatov, M. A.; Spasskiy, S. S.

TITLE: The synthesis, polymerization and copolymerization of polyorganosiloxanes containing methacrylate groups. 2. Investigation of polymerization and copolymerization by the infrared absorption spectra method

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 6, no. 2, 1964, 265-268

TOPIC TAGS: organosilicon compound, organosiloxane, polyorganosiloxane, methacrylate, styrene, copolymer with styrene, methacrylate polysiloxane polymer, double bond, saturation of double bond, infrared spectra, absorption band, absorption band optical density

ABSTRACT: Block polymerization of methacrylate polysiloxanes (containing from zero to nine of the $Si(CH_3)_2O$ groups) and their copolymerization with styrene (in a ratio of 1 Mol of styrene monomer per 1 Mol of polysiloxane unit) were investigated. The polymerization was conducted in the presence of 0.2% benzoyl peroxide in sealed ampules, in an atmosphere of nitrogen, for 6 hours at 70 and 100C and 12 hours at 120C, when it underwent complete solidification. The infrared spectra

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ACCESSION NR: AP4017638

were taken by means of a IKS-14 registering spectrophotometer, the absorption band at 1634 cm^{-1} having been selected as representing the $CH_2 = C$ - double bonds which decrease in numbers during the reaction process. The other band was the one at 697 cm^{-1}, which represents the $Si(CH_3)_2$ groups, the number of which remains constant. As can be seen from Fig. 1 on the Enclosure, an increase in the number of methylsiloxane groups causes the optical density ratios to drop due to a decrease in the double bond content. It is suggested that the presence of unreacted double bonds is due to steric hindrances. The copolymerization with styrene was found to proceed towards an almost complete saturation of the double bonds. Orig. art. has: 2 charts and 1 table.

ASSOCIATION: Institut khimii Ural'skogo filiala AN SSSR (Institute of Chemistry, Ural Division AN SSSR)

SUBMITTED: 03Dec62 DATE ACQ: 23Mar64. ENCL: 01

SUB CODE: CH NO REF SOV: 004 OTHER: 002

Card 2/3

MOLCHANOVA, V.V.; ILYUSNIN, V.G.; ALEKSEYEVA, I.A.

Orienting effect in the methylation of benzene by methyl chloride in the presence of aluminum chloride. Izv. Sib. otd. AN SSSR no.3:80-83 '62. (MIRA 17:7)

1. Ural'skiy filial AN SSSR, Sverdlovsk.

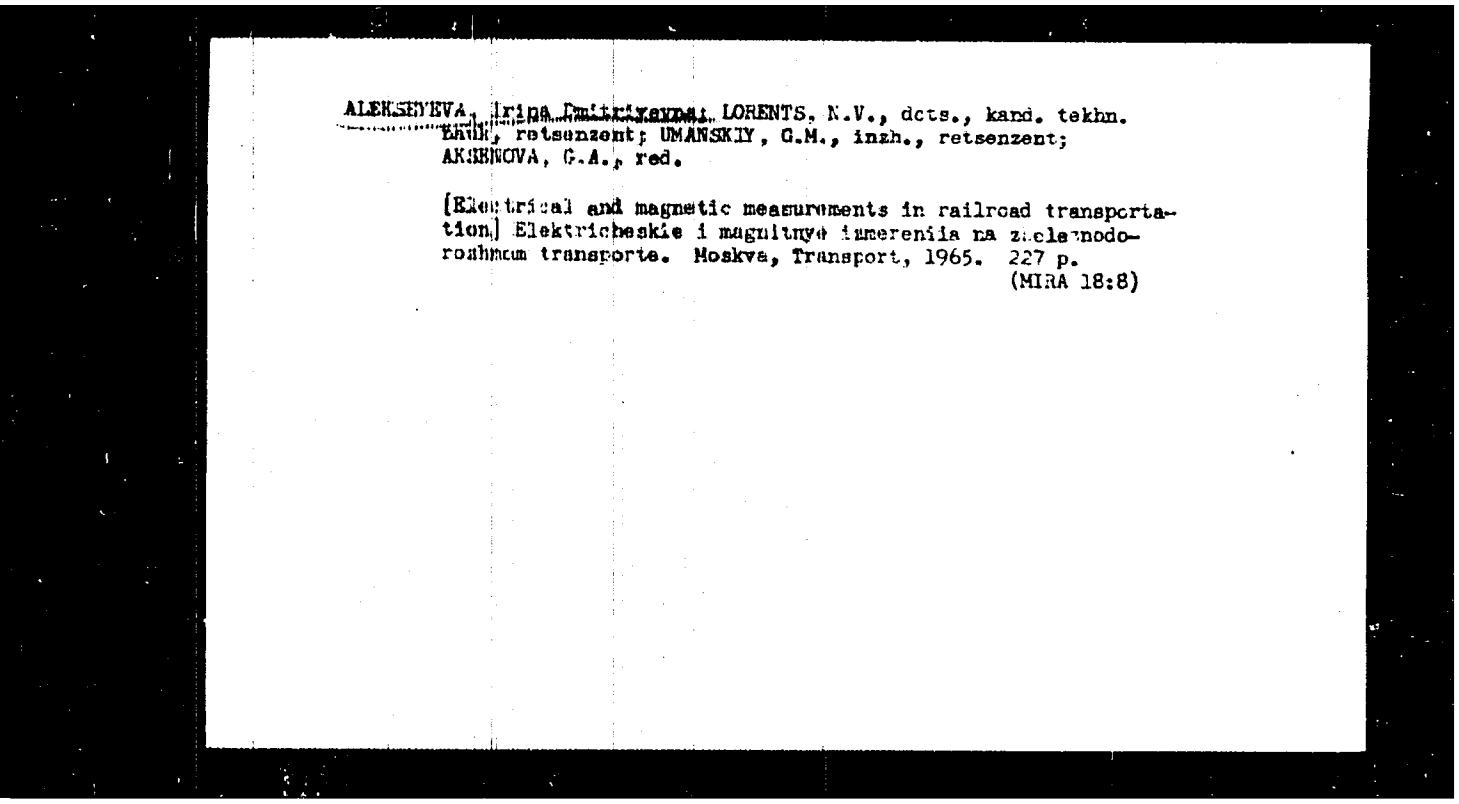
SEMENOVA, G.A.; SUVOROV, A.L. SAMARINA, L.A.; ALEKSEYEVA, I.A.; SPASSKIY, S.S.

Infrared spectra of some organotitanium compounds. Zhur. prikl. spekt. 3 no. 6:555-559 D '65 (MIRA 19:1)

1. Submitted October 8, 1964.

FILIPPOVA, M.M., inzh.; PENTEGOV, V.V., inzh.; ALEKSEYEVA, I.D., inzh.

Load distribution between turbogenerators of electric power plants. Elek. sta. 36 no.2:74-75 F '65. (MIRA 18:4)



ALEKSEYEVA, Irina Dmitriyevna; LORENTS, N.V., dots., kand. tekhn. nauk, retsenzent; UMANSKIY, G.M., inzh., retsenzent; AKIMOVA, G.A., red.

[Electrical and magnetic measurements in railroad transportation] Elektricheskie i magnitnye izmereniia na zheleznodorozhnom transporte. Moskva, Transport, 1965. 227 p. (MIRA 18:8)

YANOVICH, T.D.; KALMYKOVA, G.N.; ALEKSEYEVA, I.K.; RACHKOVSKIY, A.P.; OSOKINA, L.A.

Study on tuberculosis infection by means of graduated epicutaneous tuberculin test. Sbor. nauch. trud. Rost. gos. med. inst. no.22:3-12 '63. (MIRA 18:7)

1. Iz kafedry epidemiologii Rostovskogo gosudarstvennogo meditsinskogo instituta (zav. - prof. T.D.Yanovich).

USSR/Inorganic Chemistry. Complex Compounds. C

ALEKSEYEVA, I. I.

Abs Jour : Referat Zhurnal Khimiya No 5 1957 18847

Author : K.B. Yatsimirskiy, I.I. Alekseyeva.

Inst : -

Title : Study of Oxalate and Phosphate Complexes of Molybdenum by the Kinetic Method

Orig Pub : Zh Neorgan Khimii 1956 1 No 5 952-957

Abstract : The equilibrium in solutions of oxalate and phosphate complexes of Mo was studied on the basis of the measurement of the speed of the reaction of iodide oxidation by hydrogen peroxide in an acid medium. This reaction is catalyzed by molybdic acid (I) (RZhKhim 1956 78950). A decrease of the concentration of I in consequence of the formation of complexes causes a corresponding decrease of the reaction speed. Oxalic and phosphoric acids were used in excessive amounts as complex producing reagents. The concentration of the H^+ ions was 0.144 M. The kinetic study showed that I reacted with oxalic acid according to the equation: $H_2MoO_4 + H_2C_2O_4 = [MoO_2C_2O_4]$

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USSR/Inorganic Chemistry. Complex Compounds. C

Abs Jour : Referat. Zhurnal Khimiya No 6 1957 18847

$+ 2H_2O$ (1). The equilibrium constant of the reaction (1) is 2353 ± 120. Phosphoric acid reacts with (I) according to the equations: $H_2MoO_4 + H_3PO_4 =$ $= [MoO_2PO_4]^- + H^+ + 2H_2O$ (2) and $H_2MoO_4 + 2H_3PO_4 =$ $= [MoO_2(PO_4)_2]^{4-} + 4H^+ + 2H_2O$. The equilibrium constant of the reaction (2) is 10.5 ± 0.7. It was found that $H_4[MoO_2(PO_4)_2]$ (II) is a strong acid, and the value of the constant of dissociation into simple compounds was also found. The values of the equilibrium constants refer to the temperature of 22 to 23° and to the ion of 0.48.

Card 2/2 -27-

AUTHORS: Yatsimirskiy, K.B., Alekseyeva, I.I. 153-58-1-8/29

TITLE: The Investigation of Absorption Spectra and the Determination of the Dissociation Constants of Molybdic Acid (Izucheniye spektrov pogloshcheniya i opredeleniya konstant dissotsiatsii molibdenovoy kisloty)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 53-58 (USSR)

ABSTRACT: A process of depolymerization is assumed to take place during the dilution of molybdic acid solutions, and it is believed that highly diluted solutions contain nearly only monomeric particles. The correctness of this assumption is confirmed also by the study of complex molybdenum compounds (by the application of the kinetic method). The authors were therefore interested in investigating these diluted molybdic acid solutions by the optical method. They obtained the following results: Highly diluted molybdic acid solutions contain no polymerized particles, which proves the constancy of the molar extinguishing coefficient within a fairly extensive interval of the molybdenum concentrates ($2 \cdot 10^{-5}$ to $2 \cdot 10^{-4}$ M). By the kinetic method it was established that in acid solutions and

Card 1/2

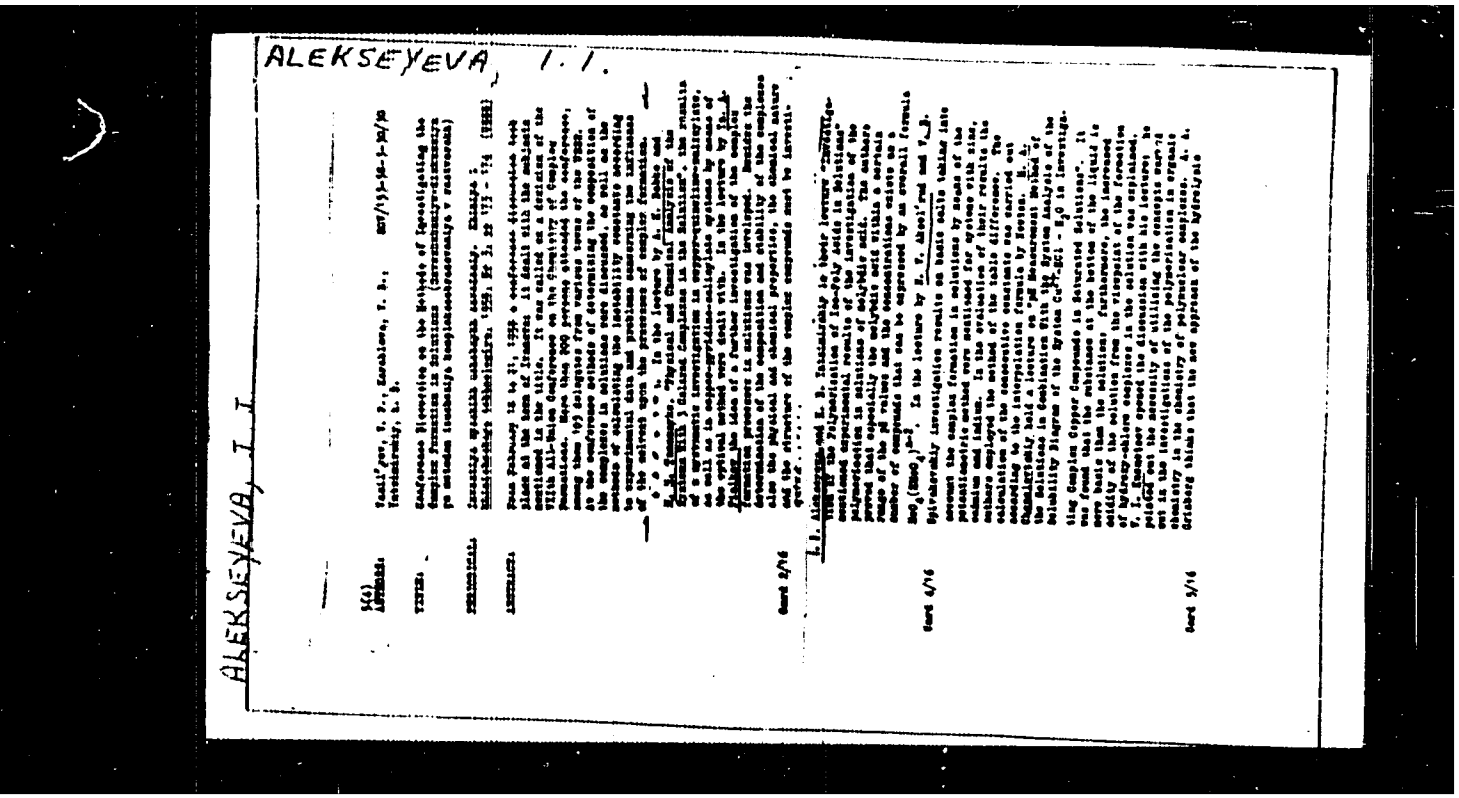
The Investigation of Absorption Spectra and the Determination of the Dissociation Constants of Molybdic Acid 153-58-1-8/29

in the case of a high degree of dilution mainly non-dissociated molecules of molybdic acid exist. It may therefore be expected that in the case of low pH-values non-dissociated molecules, but at higher pH-values hydromolybdate- and molybdate ions will be found (as dissociation products of molybdic acid). For the determination of the H_2MoO_4-dissociation constants and for the purpose of investigating the absorption spectra the dependence of the optical density of the solutions upon the concentration of the hydrogen ions was studied. According to the course taken by the curve (fig.1) the existence of 3 kinds of particles with diverse molar extinguishing coefficients according to pH values must be expected. On the strength of the experimental data obtained absorption spectra of molybdic acid as well as of dissociation products were obtained (fig.3). There are 3 figures, 3 tables, and 6 references, 2 of which are Soviet.

ASSOCIATION: Kafedra analiticheskoy khimii (Chair of Analytical Chemistry)

SUBMITTED: [illegible] 1957

Card 2/2



ALEKSEYEVA, I. I.

ALEKSEYEVA, I. I.

5(2)
AUTHORS: Matsimirskiy, A.B., Alekseyeva, I.I. SOV/32-24-12-2/45

TITLE: Spectrophotometric and Kinetic Methods for Determining Molybdenum in Alloys (Spektrofotometricheskiy i kineticheskiy metody opredeleniya molibdena v splavakh)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 12, pp 1427-1429 (USSR)

ABSTRACT: A method for determining molybdenum in steels and nickel alloys was developed which is based upon the absorption of light by molybdic acid in the wave-length region 220 - 240 mμ (Ref 2). It is carried out in alkaline medium. The sensitivity of the method is given as 7.10^{-7} g/ml Mo. The measurements were made with a SF-4 spectrophotometer. The molybdenum content is determined on the basis of a standard curve. Molybdenum alloys of Ni base Nr 3 and 4 as well as EI401 and Kh10S2M steels were analyzed (Table 1). The relative error of the method is 2-5 %. The kinetic method of determining molybdenum is ten times more sensitive than the spectrophotometric method. The principle of the kinetic method is the catalytic effect of molybdic acid in the oxidation of iodide with hydrogen peroxide. The method was previously reported in an earlier paper (Ref 5).

Card 1/2 Since Fe^{3+}, Cu^{2+}, and other ions interfere in the analysis the iron

Spectrophotometric and Kinetic Methods for Determining Molybdenum in Alloys

(Fe^{2+}) in the present analysis was oxidized with Trilon B to Fe^{3+} and then bound in a complex compound. A FEK-M apparatus was used to analyze Kh 10S 2 M steel (Table 2) and iron oxide (Fe_2O_3) (Table 3.

The sensitivity of the method is about 10^{-3} g/ml Mo.- There are 3 tables and 7 references, 6 of which are Soviet.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut
(Ivanovo Chemical Technological Institute)

ALEKSEYEVA, I. I.: Master Chem Sci (diss) -- "A study of the properties of molybdic acid and its complex compounds in solution". Ivanovo, 1959. 18 pp (Min Higher Educ USSR, Ivanovo Chem-Tech Inst), 130 copies (KL, No 17, 1959, 105)

SOV/78-4-4-18/44

5(4)

AUTHORS: Yatsimirskiy, K. B., Alekseyeva, I. I.

TITLE: State [illegible] Molybdic Acid in Weak Acid Solutions (O [illegible] molibdenovoy kisloty v slabokislykh rastvorakh)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 4, pp 818-822 (USSR)

ABSTRACT: The conditions under which molybdic acid polymerizes were investigated at different concentrations ($2.0 \cdot 10^{-4}$ to $8.0 \cdot 10^{-2}$ molar) and at various pH values (1-6.5). In order to ascertain the possibility of the existence of the monomeric form of molybdic acid and to determine the nature of the polymerization process the light absorption of solutions of molybdates and molybdic acid was studied at wavelengths from 270 to 350 mμ. The determination of the optical densities was carried out using a SF-4 spectrophotometer. The dependence of the molar absorption coefficients upon the molybdate concentration was investigated at constant pH and constant wavelength. The curves obtained show that at lower molybdate concentrations the molybdic acid is present in the monomeric form. The polymeric form exists also at higher concentrations. The phase diagram of molybdic acid in solution was constructed (log C in

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State ' Molybdic Acid in Weakly Acid Solution

dependence upon the pH value). In the pH range 1 to 4 the polymerization begins at a molybdic acid concentration of 10^{-3} molar. With an increase in the pH value the polymerization boundary shifts to the side of the higher concentration. Finally at pH 6.5 no more polymerization occurs. The following polymerization schemes are suggested for molybdic acid:

$$nMoO_4^{2-} + (n-1)HOH \rightleftharpoons (HMoO_4)_{n-1}MoO_4^{(n+1)-} + (n-1)OH^-$$

(at pH values 4 to 6) and

$$(n+1)H^+ + (HMoO_4)_{n-1}MoO_4^{(n+1)-} \rightleftharpoons (H_2MoO_4)_n$$

(at pH values 1-4).

There are 5 figures and 7 references, 1 of which is Soviet.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut (Ivanovo Chemical Technological Institute)

SUBMITTED: April 24, 1958

Card 2/2

YATSIMIRSKIY, K.B.; ALEKSEYEVA, I.I.

Spectrophotometric titration of lead with molybdate in the ultraviolet. Zhur.anal.khim. 17 no.5:574-578 Ag '62. (MIRA 16:3)

1. Ivanovo Chemico-Technological Institute.
(Lead--Spectra) (Molybdates)

YATSIMIRSKIY, K.B.; ALEKSEYEVA, I.I.

Absorption spectra of isopolymolybdenic acids in solution.
Zhur. neorg. khim. 8 no.11:2513-2517 N '63. (MIRA 17:1)

ALEKSEYEVA, I. K. Cand Med Sci -- (diss) "Bioelectric activity of the cortex and the subcortical formations of the cerebrum in the dynamics of experimental diphtheritic intoxication." Rostov-on-Don, 1958. 15 pp (Rostov-on-Don State Med Inst), 200 copies (KL, 37-58, 106)

ALEKSEYEVA, T.E.

Evaluation of differentiated tuberculin test for the examination of children and adolescents for tuberculosis. Sbor. nauch. trud. Rost. gos. med. inst. no.22:29-38 '63. (MIRA 18:7)

1. Iz kafedry epidemiologii Rostovskogo gosudarstvennogo meditsinskogo instituta (zav. - prof. T.D.Yanevich).

ALEKSEYEVA, I.M. [Alekseieva, I.M.]

Correlation between protein changes in the blood serum and variation of the arterial pressure in heterohemotransfusion shock. Fiziol. zhur. [Ukr.] 11 no.1:121-123 Ja-F '65. (MIRA 18:7)

1. Laboratoriya izucheniya biologicheski aktivnykh veshchestv Instituta fiziologii im. Bogomol'tsa AN UkrSSR, Kiyev.

L 31282-66

ACC NR: AP6020241 SOURCE CODE: UR/0300/65/037/002/0226/0230

AUTHOR: Alekseyenova, L. M.

ORG: Institute of Physiology im. A. A. Bogomolets, AN UkrSSR, Kiev (Instytut fiziolohiyi AN UkrSSR)

TITLE: Protein changes in the serum of the recipient after transfusion of a protein blood substitute (BK-8)

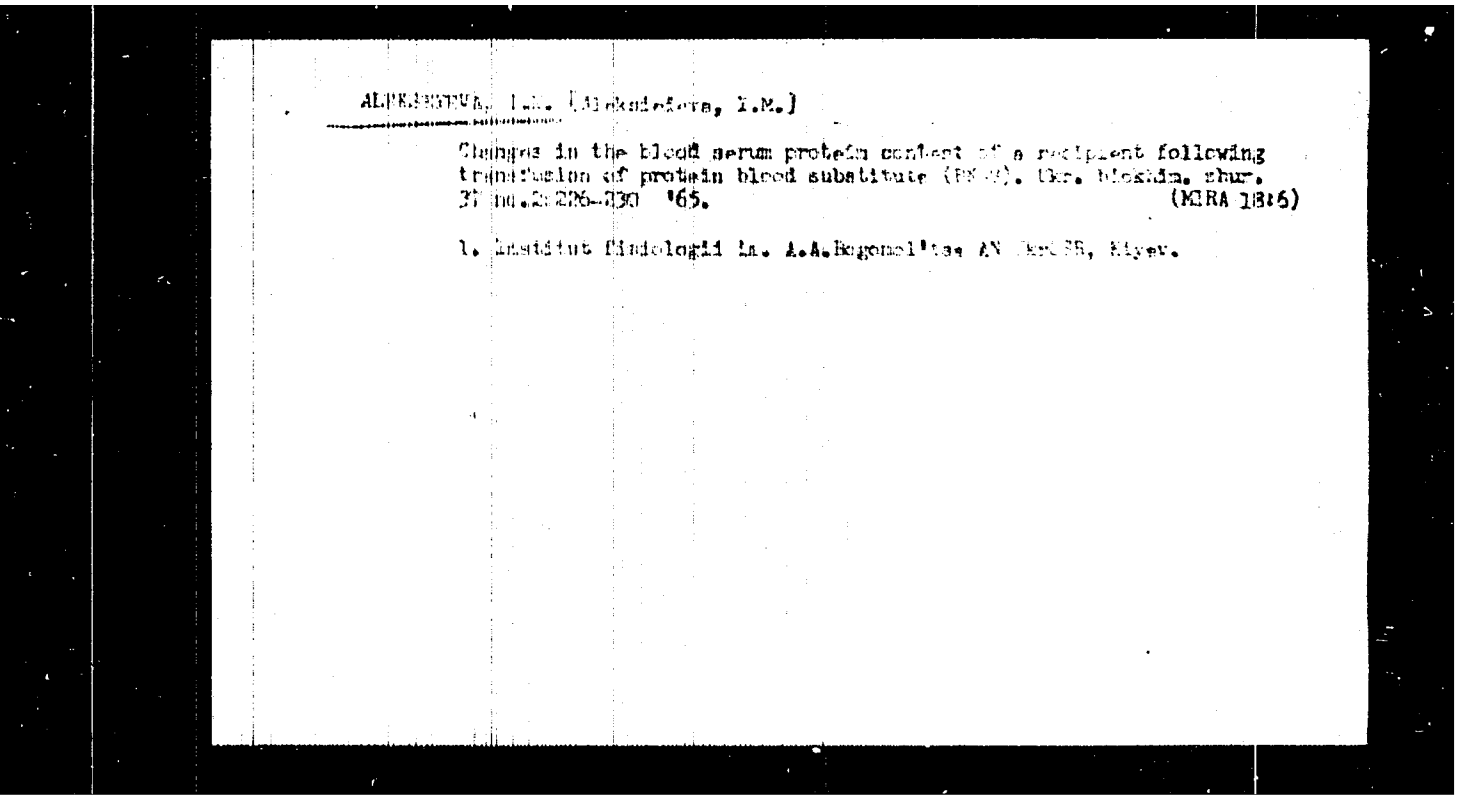
SOURCE: Ukrayins'kyy biokhimichnyy zhurnal, v. 37, no. 2, 1965, 226-230

TOPIC TAGS: protein, blood, serum

ABSTRACT: Previous investigations of the author have shown that transfusion of BK-8 [belkovyy krovozamenitel' -8; protein blood substitute-8] induces a decrease in the albumin content and an increase in that of alpha- and beta-globulins during the first five minutes - one hour after the transfusion. This report deals with studies determining protein composition of blood serum five minutes and one hour after transfusion of BK-8 under conditions of precipitation of BK-8 proteins changes noted in the protein formula disappear. Therefore, it can be assumed that the changes in the protein content of the serum - the decrease in albumin content and increase in alpha- and beta-globulin content - are associated in the early post-transfusion period with the transformation of protein fractions due to the transfer by them of some of the blood substitute proteins. Orig. art. has: 2 tables. [JPRS]

SUB CODE: 06 / SUBM DATE: 07Jan64 / ORIG REF: 005 / OTH REF: 001

Card 1/1



ALEKSEYEVA, L.M. [Alekseieva, L.M.]

Changes in the blood serum protein content of a recipient following transfusion of protein blood substitute (PBS-6). Ukr. biokhim. zhur. 37 no.2:226-230 '65. (MIRA 18:6)

1. Institut fiziologii im. A.A.Bogomol'tsa AN Ukr.SSR, Kiyev.

ALEKSEYEVA, I.M. [Alekseieva, I.M.]

Changes in serum proteins following blood loss and subsequent transfusion of the BK-8 protein blood substitute. Fiziol.zhur. [Ukr.] 9 no.5:673-682 S-O'63 (MIRA 17:4)

1. Laboratoriya po vivchennyu dii biologichno aktivnikh rechovin Institutu fiziologii im. O.O. Bogomol'tsya AN URSR, Kiiv.

ALEKSEYEVA, I.N. [Alekseieva, I.N.]

Changes in the total concentration of protein and protein fractions of the blood serum in the organism during repeated administration of the blood protein substitute (BK-8), heterogenous and isogenous serums. Ukr.biokhim.zhur. 34 no.6:825-833 '62. (MIRA 16:4)

1. A.A.Bogomolets Institute of Physiology of the Academy of Sciences of the Ukrainian S.S.R., Kiev.
(BLOOD PROTEINS) (BLOOD--TRANSFUSION)

ALEKSEYEVA, I.N. [Alekseieva, I.N.]

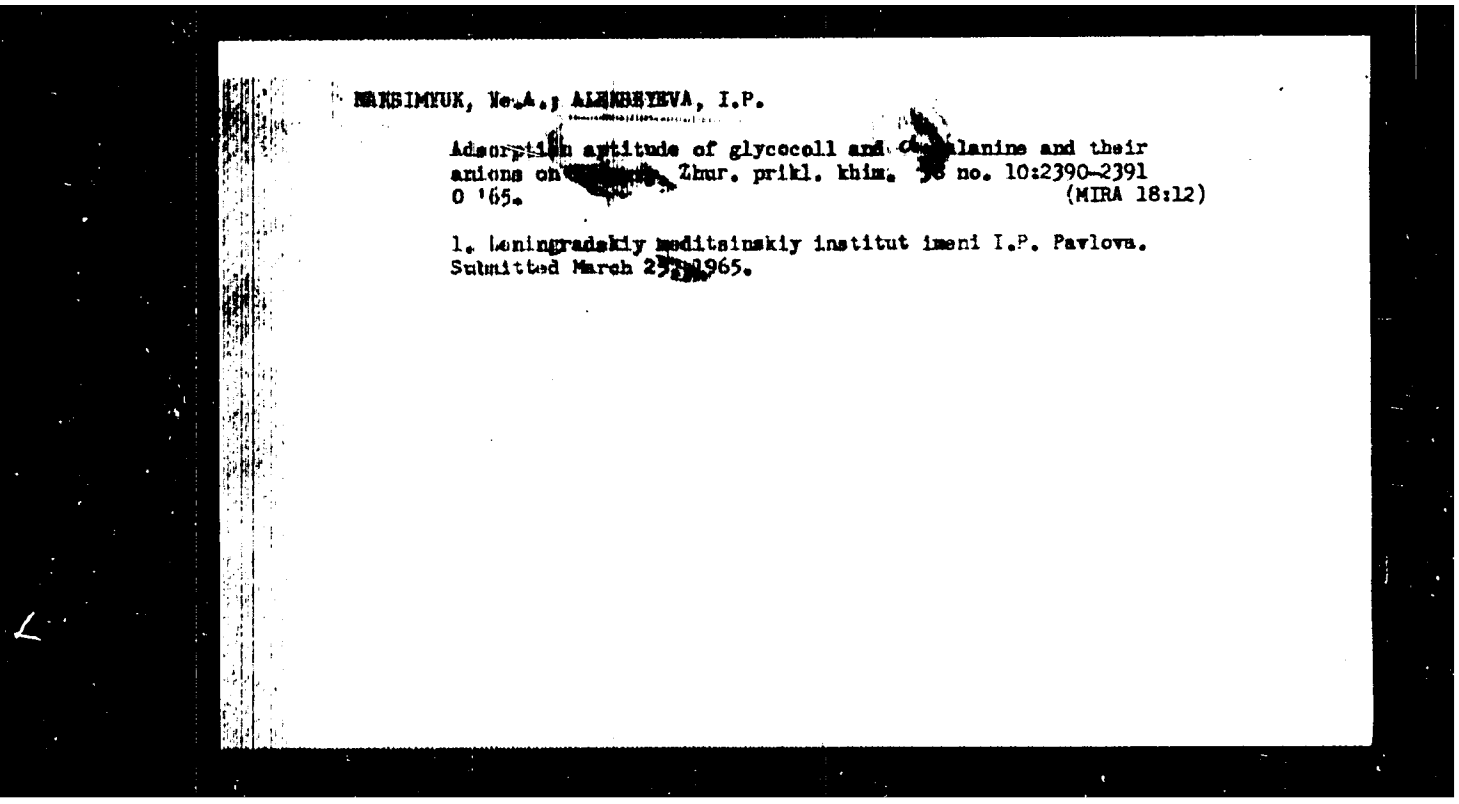
Effect of a single transfusion of a protein blood substitute (BK-8) heterogenic and isogenic sera on blood serum proteins in the body. Fiziol. zhur. [ukr.] 8 no.5:671-675 S-O '62. (MIRA 17:11)

1. Laboratoriya dlya izucheniya deystviya biologicheski aktivnykh veshchestv Instituta fiziologii im. Bogomol'tsa AN UkrSSR, Kiyev.

SPASOKUKOTSKIY, Yu.A. [Spasokukots'kyi, IU.O.]; ALEKSEYEVA, I.N. [Alekseieva, I.N.]; FEDOROVSKAYA, M.I. [Fedorovs'ka, M.I.]

Effect of intravenous injections of high doses of antiovarial cytotoxic serum on the sexual cycle of white rats. Fiziol.zhur. [Ukr] 9 no.3:393-394 My-Je '63. (MIRA 18:1)

1. Laboratoriya izucheniya biologicheski aktivnykh veshchestv Instituta fiziologii im. Bogomol'tsa AN UkrSSR, Kiyev.



MAKSIMYUK, Ye.A.; ALEKSEYEVA, I.P.

Adsorption aptitude of glycocoll and [illegible]alanine and their anions on [illegible]. Zhur. prikl. khim. 38 no. 10:2390-2391 O '65. (MIRA 18:12)

1. Leningradskiy meditsinskiy institut imeni I.P. Pavlova. Submitted March 27, 1965.

S/079/60/030/007/021/039/XX
B001/B066

AUTHORS: Alekseyeva, I. P., Pesotskaya, V. M., and Ptitsyn, B. V.

TITLE: Oxidation Potential of Permanganate

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 7, pp. 2104-2108

TEXT: The purpose of this work was a more exact characterization of the oxidizing effect of permanganate. Its oxidizing effect depends on the acidity of the solution, but research workers disagree in this respect. The investigation of the dependence of the potential of the permanganate solution on pH is of interest since the reduced form which is in equilibrium with the permanganate ion may be determined from the potential as a function of the percentual content. In an acid solution, the latter may be in equilibrium with some of its reduction products, except compounds of bivalent manganese, as potassium permanganate oxidizes the Mn^{++} at any percentual content. Therefore, the universal equation

$$E = 1510 + \frac{59.1}{5} \lg \frac{[MnO_4^-][H^+]^8}{[Mn^{++}]}$$

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cannot be used to characterize the oxidation properties of permanganate. To study these states of equilibrium different methods were applied (Refs. 3-5,6,7). B. V. Ptitsyn and V. F. Petrov (Ref. 8) indicated that also in the case of bichromate solution the oxidation potential may be affected by the nature of the acid. This might also apply to permanganate. The present paper deals with the following problems: 1) Quantitative determination of the oxidation potential of the permanganate solution as dependent on the pH of the medium. 2) The question as to whether the nature of the acid influences the potential. 3) A more exact characterization of the states of equilibrium established in the permanganate solution under the conditions of the experiments to be performed. The authors investigated the dependence of a potassium permanganate solution (0.01 mole) in solutions of $HClO_4$, HNO_3, H_2SO_4, CH_3COOH. The effect depends on the nature of the acid at low pH only. An attempt was made to interpret the nature of the reduced forms which are in equilibrium with the permanganate ion, on the basis of the functions of the permanganate solution potential on pH in solutions of different acids. Table 1 gives the data of the potential dependence of $KMnO_4$ dissolved in $HClO_3$, and Table 2 the values

Oxidation Potential of Permanganate S/079/60/030/007/021/039/XX
B001/B066

$\Delta E/\Delta pH$ for various redox systems. The diagram illustrates the oxidation potential of potassium permanganate as dependent on pH in the presence of different acids. For the oxidation potential of permanganate in $HClO_4$ and HNO_3, E was found to be 1600 mv, in H_2SO_4: E = 1650 mv. There are 1 figure, 2 tables, and 9 references: 4 Soviet, 4 US, and 1 Spanish.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut pishchevoy promyshlennosti (Leningrad Technological Institute of the Alimentary Industry)

SUBMITTED: July 6, 1959

Card 3/3

ALEKSEYEVA, I.V.

Intranasal use of tincutre of aloe in atrophic nasopharyngitis and ozena. Vest. oto-rin. 18 no.1:22-24 Ja-F '56. (MLRA 9:6)

1. Iz kliniki bolezney ukha, gorla i nosa (dir.-deystvitel'nyy chlen AMN SSSR prof. B.S. Preobrazhenskiy) lechebnogo fakul'teta II Moskovskogo meditsinskogo instituta imeni I.V. Stalina.

(PHARYNGITIS
nasopharyngitis, ther., aloe tincture)
(RHINITIS, ATROPHIC, ther.
aloe tincture)
(RHINITIS
nasopharyngitis, ther., aloe tincture)
(ALOE, ther. use
aloe tincture in atrophic rhinitis & nasopharyngitis)

REZNIKOV, L.I.; SHAMASH, S.Ya.; ALEKSEYEVA, I.V.

State of students' knowledge in physics. Fiz.v shkole 21 no.4:50-53 Jl-Ag '61. (MIRA 14:10)

1. Sektor obucheniya fiziko Instituta obshchego i politekhnicheskogo obrazovaniya Akademii pedagogicheskikh nauk RSFSR.
(Physics--Study and teaching)

SHAPOSHNIKOVA, Z. B.; ALEKSEYEVA, I. V.; ROMINSKIY, I. R.

Method of preparing pure lactulose with the aid of ion exchange resins. Ukr. khim. zhur. 28 no.6:724-725 '62.
(MIRA 15:10)

1. Institut organicheskoy khimii AN UkrSSR.

(Lactulose) (Ion exchange resins)

SHAPOSHNIKOVA, Z.B.; LISOVSKAYA, N.N.; ALEKSEYEVA, I.V.; ROMINSKIY, I.R.

Syntheses of tosyl ehters of lactose and lactulose. Ukr.khim.zhur. 28 no.7:858-860 '62. (MIRA 15:12)

1. Institut orgainicheskoy khimii AN UkrSSR.
(Lactose) (Lactulose) (Toluenesulfonic acid)

ROMINSKIY, I.R.; SHAPOSHNIKOVA, Z.B.; LISOVSKAYA, N.N.;
ALEKSEYEVA, I.V.

Structure of tosyl derivatives of lactose and lactulose.
Ukr. khim. zhur. 29 no.4:420-423 '63. (MIRA 16:6)

1. Institut organicheskoy khimii AN UkrSSR.
(Lactose) (Lactulose)
(Toluenesulfonic acid)

VVEDENSKIY, A.A., otv.red.; MOLDAVSKIY, B.L., nauchnyy red.; BARKOVSKIY, I.V., vedushchiy red.; ALEKSEYEVA, K.A., red.; GADASKINA, N.D., red.; DEMENT'YEVA, M.I., red.; KAGANOVA, E.M., red.; KOBELEV, V.A., red.; LEVIN, S.Z., red.; POKORSKIY, V.N., red.; TEODOROVICH, V.P., red.; SHMULYAKOVSKIY, Ya.E., red.; GENNAD'YEVA, I.M., tekhn.red.

[Collection of reports of scientific research carried out between 1950 and 1957] Sbornik referatov nauchno-issledovatel'skikh rabot, vypolnennykh v 1950-1957 gg. Leningrad, Gos.nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, leningr.otd-nie, 1958. 158 p. (MIRA 12:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i polucheniyu iskusstvennogo zhidkogo topliva.
(Petroleum research)

SOV/65-58-6-4/13

AUTHORS: Rudkovskiy, D. M; Trifel', A. G. and Alekseyeva, K. A.

TITLE: Preparation of C_6 - C_8 Alcohols from Olefin-Containing Fuel Fractions by the Oxo-Synthesis. (Polucheniye vysshikh spirtov C_6 - C_8 iz olefinsoderzhashchikh topliynykh fraktsiy metodom oks.sinteza).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel. 1958. Nr.6. pp. 17 - 24. (USSR).

ABSTRACT: The fundamental principles of the Oxo-synthesis and the uses of end products are reviewed. Amongst these end products are higher alcohols (C_6-C_8) which are excellent flotation agents for light metal ores and for slack. Results of experiments on the preparation of C_6-C_8 aldehydes from olefin-containing fuel fractions are given. The influence of the concentration of the catalyst, the temperature, pressure, composition of the synthesis gas, the rate of supply of the liquid raw material and of the rate of circulation of the gas on the carbonylation process, were investigated. The raw material used was the fraction boiling up to 100 C which was separated on a rectification column during two distillations of cracked petroleum. Various physical constants of this fraction are listed as well as the content of C_5, C_6 and C_7 hydro-

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Preparation of C_6 - C_9 Alcohols from Olefin-Containing Fuel Fractions by the Oxo-Synthesis

carbons in the raw material (Table 1). The experiments were carried out on a continuous apparatus (Fig.1). Details of the process of carbonylation of unsaturated hydrocarbons are given. Cobalt carbonyl was used as catalyst. The influence of the concentration of this catalyst on the rate of carbonylation of unsaturated C_5 - C_7 hydrocarbons was investigated at a temperature of 162°C, pressures of 200 and 300 atms and the ratio of the rate of supply to the raw material was 3.6:1. The volume of circulating gas = 0.7 m^3/litre of raw material. The concentration of the catalyst was changed within the limits 0.03 - 0.3%. Results of these experiments are given in Table 2 and Fig.2. Details of investigations on the influence of temperature on the rate of the reaction at 290 atms are given in Table 3 and Fig.3. Activation energy was calculated according to the equation by Arrhenius and was ~ 11,000 cals/mole. The temperature coefficient of the rate of reaction = ...4. Experiments on the effect of pressure on the carbonylation process were carried out at low depths of conversion (Table 4 and Fig.4.). When the reaction was carried out under

Preparation of C_6 - C_8 Alcohols from Olefin-Containing Fuel Fractions by the Oxo-Synthesis.

industrial conditions (volume rate = 2, and concentration of the catalyst = 0.8%) a change in the pressure from 150 - 300 atms does not affect the depths of conversion (Table 5). Investigations on the influence of the composition of the gas on the process were carried out at varying temperatures, partial pressures of CO and H_2 and varying rates of supply of the raw material. From data given in Table 6 and Fig.5 it can be seen that at low temperatures (120 - 140°C) the depth of conversion of unsaturated hydrocarbons increases with increasing partial pressure of hydrogen. Results of tests on the influence of the rate of supply of the raw material and the quantity of circulating gas on the carbonylation process are given in Tables 7 and 8. The analytical investigations showed that the products obtained from fractions up to 100°C contain 39% - 42% oxygen-containing compounds. The alcohols were separated from the hydrogenates by rectification; the fraction boiling up to 100°C (unreacted raw material), the alcohol fraction (C_6 - C_8) boiling between 140 - 200°C, and the vat residue 15 - 20%. Physical constants of all these fractions are given. There are 8 Tables, 5 Figures,

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SOV/65-58-6-4/13

Preparation of C_6 - C_8 Alcohols from Olefin-Containing Fuel Fractions by the Oxo-Synthesis.

and 5 References: 3 Soviet, 1 German and 1 English.

ASSOCIATION: LenNII

Card 4/4

SOV/65-58-10-2/15

AUTHORS: Alekseyeva, K. A. and Moldavskiy, B. L.

TITLE: Conversion of Oxygen-Containing Compounds of Cheremkhovo Tar During Liquid-Phase Hydrogenation (Prevrashcheniye kislorodsoderzhashchikh soyedineniy Cheremkhovskoy smoly pri zhidkofaznoy gidrogenizatsii)

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr 10, pp 7 - 11 (USSR)

ABSTRACT: Results of investigations on the conversion of oxygen-containing compounds are reported as most publications on this subject deal with the selection of catalysts and conditions of reduction of the oxygen-containing compounds, especially of phenols into hydrocarbons (Ref.1). Tar from Cheremkhovo [illegible] semi-coke was tested. The degree of conversion was evaluated according to the formation of the broad fraction (the fraction of the hydrogenation product boiling up to a temperature of 325°C). This fraction was freed of its light components by vacuum distillation. Physical data are tabulated. The experiments were carried out in an apparatus (Fig.1) which comprised a 2 litre isothermic autoclave with an electromagnetic drive and an agitator which was operated

Card 1/4

Conversion of Oxygen-Containing Compounds of Cheremkhovo Tar During Liquid-Phase Hydrogenation

at 2,800 revs/minute. S. A. Babushkin's method (Ref.5) was used with slight modifications for the direct determination of oxygen in the organic substances. The oxygen content in the initial tar and in the hydrogenation products (the broad fraction, the residue above 325°C, the gas and water) defined also the degree of conversion of the oxygen-containing substances. The influence of the length of the reaction, the temperature and pressure on the destructive hydrogenation of Cheremkhovo tar was also investigated. A series of experiments was carried out at a pressure of 290 atms and temperatures of 460 to 420°C (Table 1 and Fig.2). The highest degree of decomposition of the raw material occurs at the beginning of the reaction, after 20 minutes, when the temperature equals 460°C, and after 1 hour at a temperature of 420°C. The rate of conversion of oxygen-containing compounds is much quicker. The effect of the pressure of hydrogen on the conversion of oxygen-containing compounds was tested at a temperature of 460°C when the reaction was carried out for one hour at pressures of 290, 200 and 100 atms. A change in the pressure from 290 to 100 atms hardly affected the total

Conversion of Oxygen-Containing Compounds of Cheremkhovo Tar During Liquid-Phase Hydrogenation

conversion of the oxygen-containing compounds which varied within the limits of 84 to 85%, but led to the distribution of the oxygen between the broad fraction, water and gas. Hydrogenation of Cheremkhovo tar at 100 atms pressure is accompanied by coke formation, and the residue boiling above 325°C shows low hydrogen content and considerable increase in the specific weight of the residue. This raw material should not be hydrogenated at 100 atms pressure in the presence of low-activity catalysts such as iron. The temperature coefficients for various degrees of conversions were also calculated (Table 3). Under the given process conditions, the decomposition of high molecular oxygen-containing compounds results in the formation of lower phenols and neutral oxygen-containing compounds having boiling temperatures in the range of those of the broad fraction: Table 4. An increase in the temperature intensifies the decomposition process of the raw material and also the conversion of the oxygen-containing compounds. The amount of phenols and neutral oxygen-containing compounds increases only slightly on raising the temperature because

SOV/65-58-10-2/15

Conversion of Oxygen-Containing Compounds of Cheremkhovo Tar During Liquid-Phase Hydrogenation

under the given condition the rate of formation of compounds only slightly exceeds the rate of their reduction. There are 4 Tables, 2 Figures and 7 Soviet References.

ASSOCIATION: LenNII

Card 4/4

ALEKSEYEVA, K.A.; MOLDAVSKIY, B.L.

Transformations of phenols in vapor-phase hydrogenation. Khim. i tekh.topl. i masel 4 no.1:43-48 Ja '59. (MIRA 12:1)

1. Leningradskiy neftyanoy issledovatel'skiy institut.
(Phenols) (Hydrogenation)

AUTHORS: Rudkovskiy, D. M., Trifel', A. G., Alekseyeva, K. A.

S/064/59/000/08/02/021
B115/B017

TITLE: Production of Butyric Aldehydes and Butyl Alcohols by Means of the Method of Oxosynthesis

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 8, pp 652-658 (USSR)

ABSTRACT: In the present paper the production of butyric aldehydes and butyl alcohols from a commerical propane - propylene fraction and from a carbon monoxide - hydrogen mixture by means of oxosynthesis is described, and the technological factors determining this process are investigated. The method has been described already earlier (Ref 7). It consists of three stages: production of the cobalt-carbonyl solution (which is used as catalyst, solvent: toluene, iso- and n-butyl alcohol, pentane-hexane fraction from the direct distillation of gasoline), carbonylization and decomposition of the catalytic complex formed. The apparatus used and the processes which take place in them are briefly described. Figure 1 shows the scheme of the laboratory arrangement, in which a flow system was used and work was carried out at a temperature of approximately 150° and at pressures of 150 to 300 atm. The composition of the gases used as initial products is also given. The influence exer-

Card 1/3

cised by the temperatures in the range of from 110 to 150° on the rate of carbonylization of propylene is investigated in a static system. The following was also investigated: The influence exercised by the cobalt concentration on the conversion of propylene at 120, 135 and 150° and 150 atm (Fig 3), the influence of pressure on the carbonylization of propylene (Table 1), of the propylene concentration in the solution on the carbonylization of propylene (Table 2), of the gas composition on the rate of pentane carbonylization (Fig 4), of propylene (Table 3) at different temperatures, of the ratio $P_{CO} : P_{H_2}$ on the constant of reaction rate ($K \cdot 10^2$) (Fig 5), of the partial pressure of carbon monoxide P_{CO} on the maximum stability temperature of cobalt carbonyl (Fig 6), of the composition of the propane-propylene fraction (Fig 7) and of the volume rate of the liquid raw material (Table 4) on the yield in propylene transformation products. Carbon dioxide delays the carbonylization reaction. The maximum stability temperature of cobalt carbonyl shows a logarithmic dependence on the partial pressure of carbon monoxide. The influence exerted by various factors on the formation of acetals in the condensation products in using butyl alcohols as solvent is given (Table 5), and the

composition of the hydrogenated product obtained by using a pentane-hexane fraction as solvent in the carbonylization of the propane-propylene fraction is mentioned (Fig 8, Table 6). The results show that n-butyl alcohol is the main reaction product (60%). The other products are: isobutyl alcohol (22%), alcohols C_8 and ester (6%), 2-ethyl hexanol (9.5%), and higher condensation products (higher than C_8) (4%). There are 8 figures, 6 tables, and 11 references, 4 of which are Soviet.

ASSOCIATION: VNIIneftekhim (VNIIneftekhim - All-Union Scientific Research Institute of Petroleum Chemistry)

RUDKOVSKIY, D.M.; TRIFEL', A.G.; ALEKSEYEVA, K.A.

Catalyst for the oxo synthesis [illegible] for its preparation.
Trudy VNIINeftekhim no.2:38-51 '58. (MIRA 14:2)
(Oxo process) (Catalysts)

RUDKOVSKIY, D.M.; TAPEL', A.G.; ALEKSEYEVA, K.A.

Use of cobalt salts of organic acids as catalysts in the process of oxo synthesis. Trudy VNIINeftekhim no.2:52-58 '60. (MIRA 14:2)
(Oxo process) (Catalysts)

MAYEVSKAYA, A. N.; ALEKSEYEVA, Kh. A.

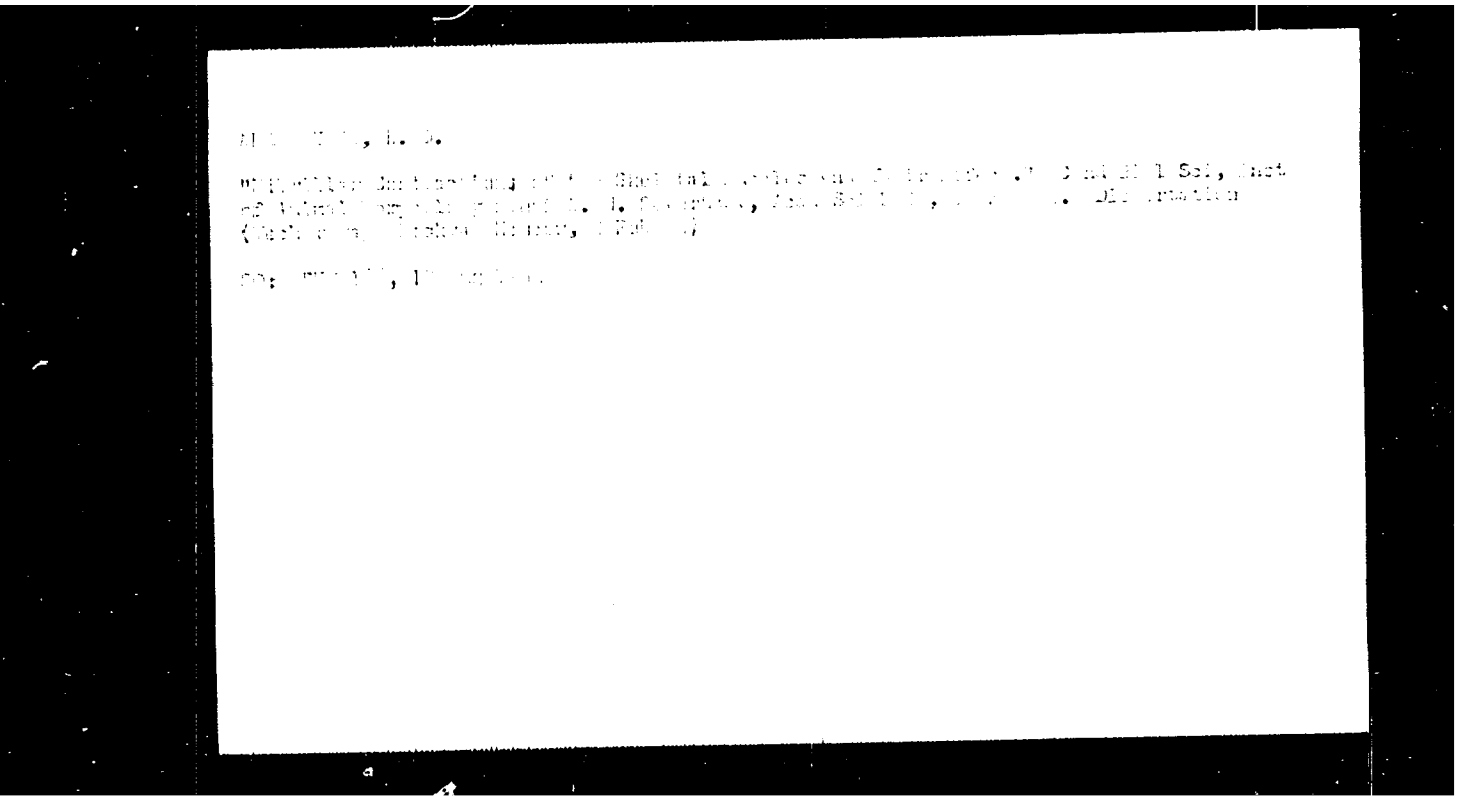
Effect of boron deficiency on the adenosinetriphosphatase activity of the sunflower. Dokl. AN SSSR 156 no. 1:212-213 My '64. (MIRA 17:5)

1. Botanicheskiy institut im. V. L. Komarova AN SSSR. Predstavlено akademikom A. L. Kursanovym.

SHKOL'NIK, M.Ya.; MAYEVSKAYA, A.N.; BOZHENKO, V.P.; ALEKSEYEVA, Kh.A.

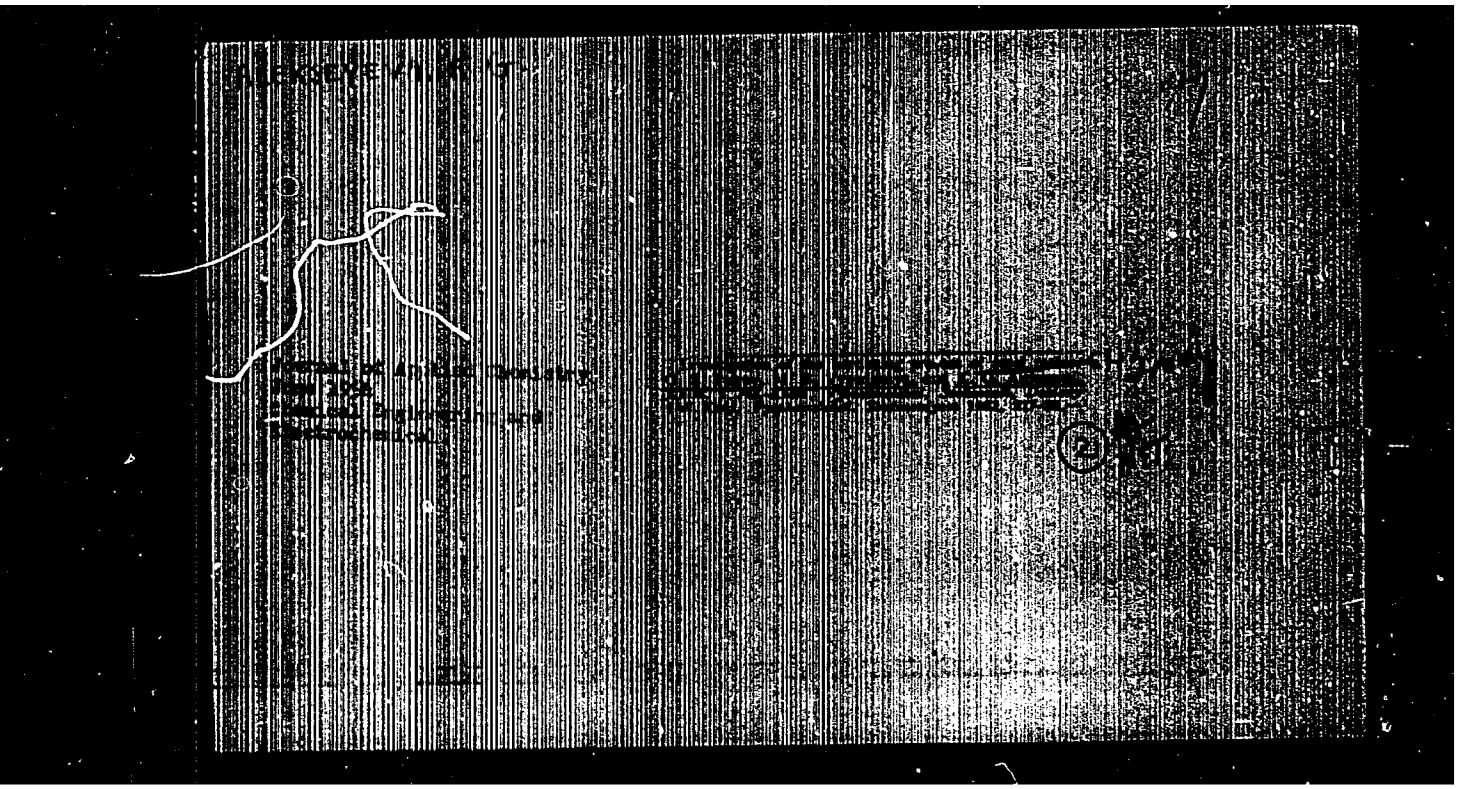
Morphological variability of plants caused by boron deficiency. Bot. zhur. 49 no.11:1584-1591 N '64. (MIRA 18:1)

1. Botanicheskiy institut imeni V.L.Komarova AN SSSR, Leningrad.



ALEKSEYEVA, K.D.

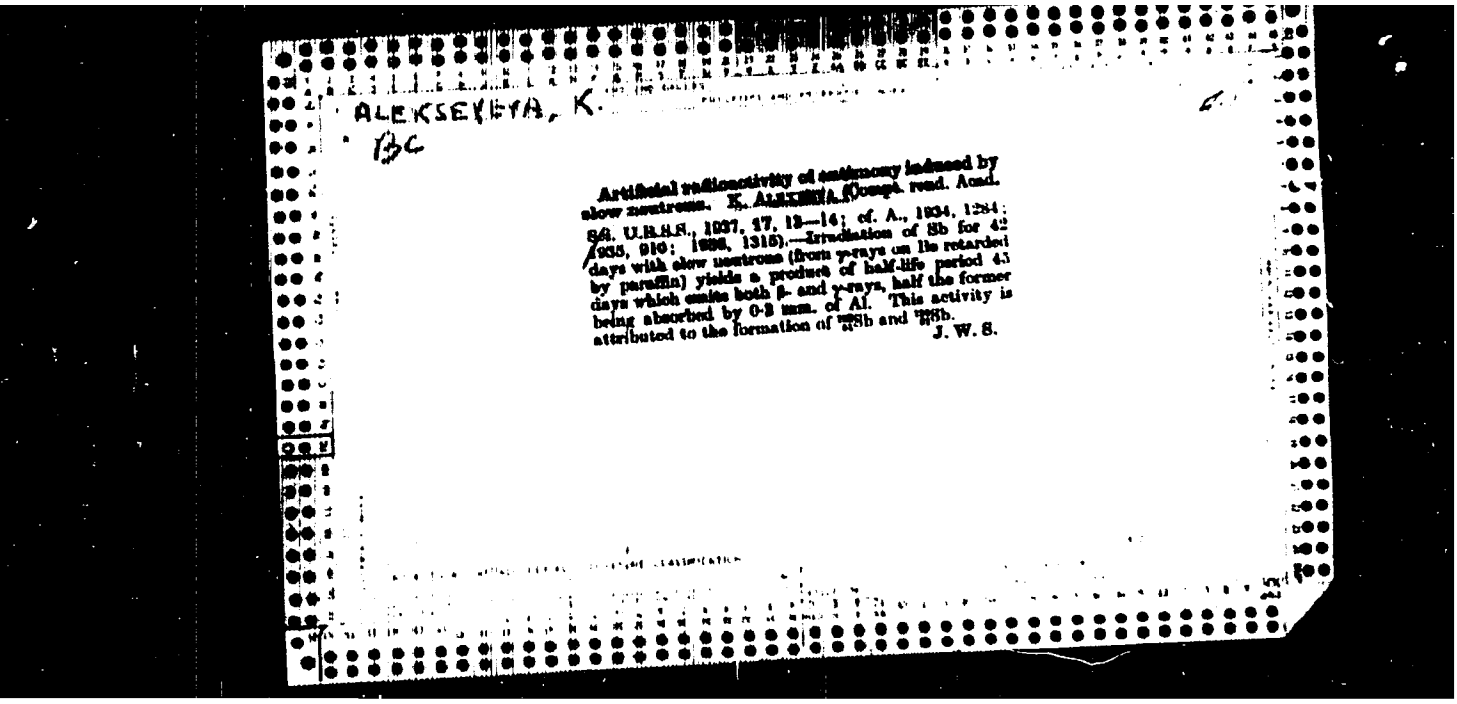
Metabolic rate in some marine fishes kept in groups and separately.
Trudy SRS 12:379-395 '59. (MIRA 14:10)
(FISHES—PHYSIOLOGY) (METABOLISM)



AL'EKSEYEVA, K. I.; KOMAR, A. P.

"Roentgenography and its Application to the Study of Materials."

ZhTF 5, 342, 1935



ALEKSEYEVA, K.

BC

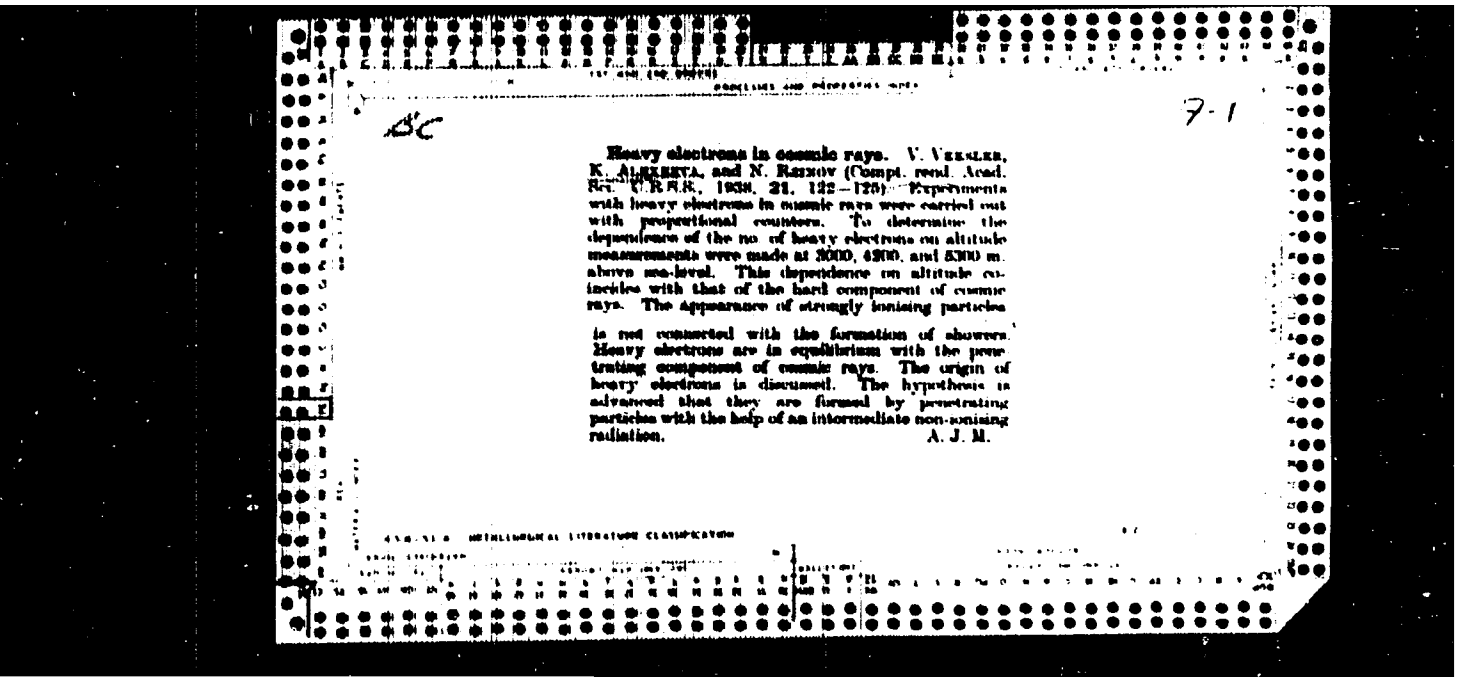
Artificial radioactivity of antimony induced by slow neutrons. K. ALEKSEYEVA. (Compt. rend. Acad. Sci. U.R.S.S., 1937, 17, 13—14; cf. A., 1934, 1284; 1935, 910; 1936, 1315).—Irradiation of Sb for 42 days with slow neutrons (from γ-rays on Be retarded by paraffin) yields a product of half-life period 4.5 days which emits both β- and γ-rays, half the former being absorbed by 0·2 mm. of Al. This activity is attributed to the formation of ^{122}Sb and ^{124}Sb.

J. W. S.

PROCESSES AND PROPERTIES INDEX

Long-period radioactivity in silver, cesium and indium activated by slow-neutron bombardment. K. Alekseeva. C. R. A. S. 18, 553-5 (1938) (in English); cf. C. A. 32, 2830. — The following substances were subjected to prolonged bombardment lasting 6-7 months with slow neutrons: Be, C, NaCl, Mg, Al, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Se, CaS, Mo, Ru, Rh, Pd, Ag, Cd, In, Sn, Sb, Te, CsCl, Ta, W, Re, Ir, Pt, Au, Tl, Bi. The activity of the samples was measured with a Geiger-Müller counter. Decay curves of samples of Ag, of CsCl compd., and of metallic In are illustrated and discussed. M. McMahon

METALLURGICAL LITERATURE CLASSIFICATION



AC

7-1

Heavy electrons in cosmic rays. V. Veksler, K. Alexeeva, and N. Rasxov (Compt. rend. Acad. Sci. U.R.S.S., 1938, 21, 122–125). Experiments with heavy electrons in cosmic rays were carried out with proportional counters. To determine the dependence of the no. of heavy electrons on altitude measurements were made at 3000, 4300, and 5300 m. above sea-level. This dependence on altitude coincides with that of the hard component of cosmic rays. The appearance of strongly ionising particles is not connected with the formation of showers. Heavy electrons are in equilibrium with the penetrating component of cosmic rays. The origin of heavy electrons is discussed. The hypothesis is advanced that they are formed by penetrating particles with the help of an intermediate non-ionising radiation.

A. J. M.

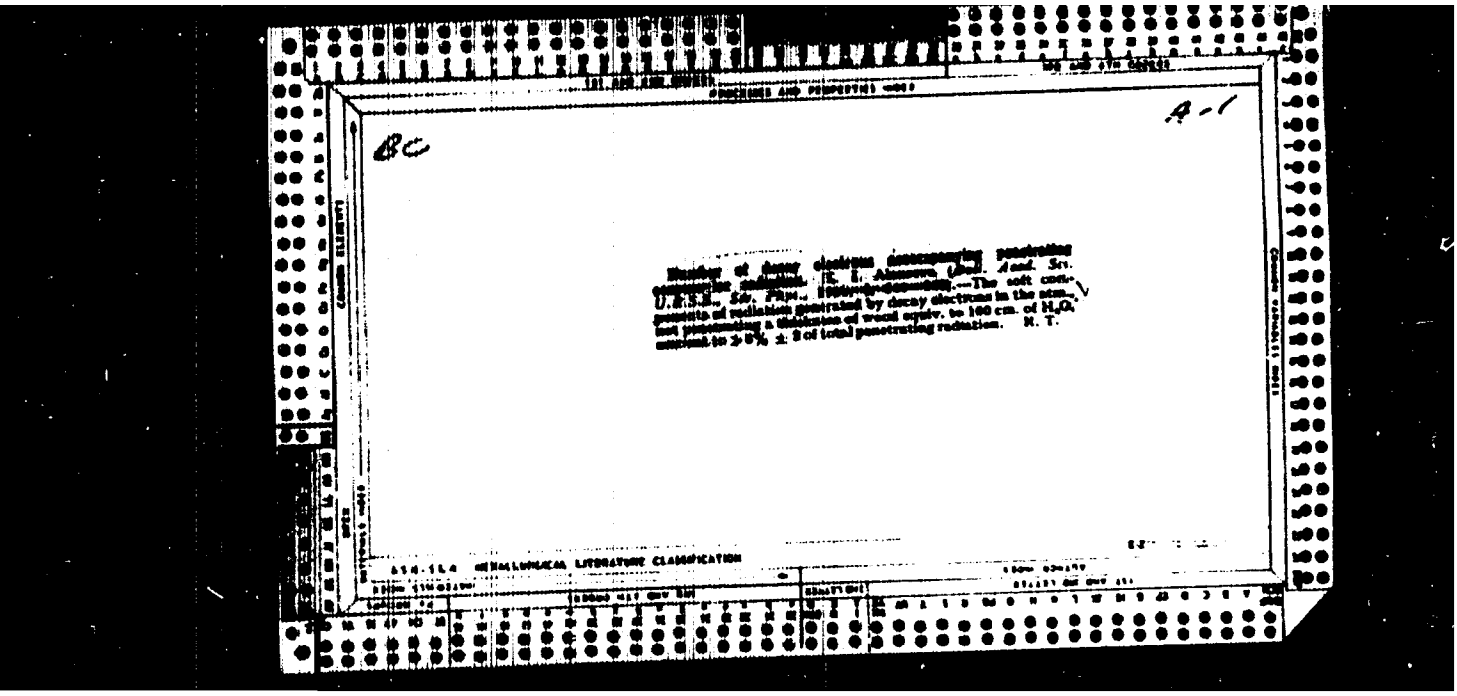
C-1

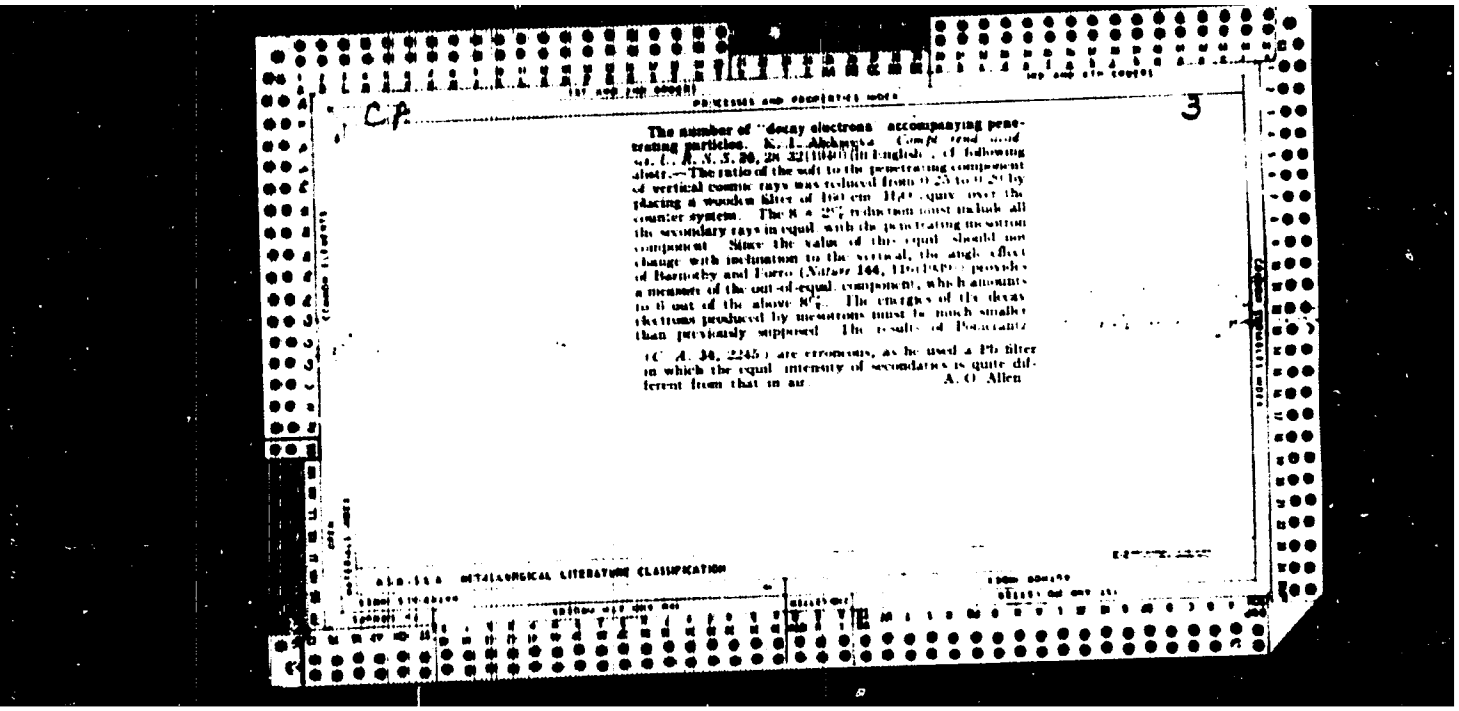
7

X-ray investigation of the tempering of carbon steel. K. I. Alekseeva and A. P. Komar. *J. Tech. Phys.* (U. S. S. R.) 9, 1043-8(1939).—Steel (C 0.8%) was quenched from 780° to 15° and then tempered at rising temps. for 30-40 min. at each temp. The intensity of the x-ray lines produced by the faces (110) and (112) increased with the temp. of tempering to a limit reached at 500-600°. The increase is slow between 250° and 400° and near 425°, presumably because of a formation of carbides.

I. I. Bikerman

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION





C.P. 3

The number of "decay electrons" accompanying penetrating particles. K. I. Alekseyeva. *Compt. rend. acad. sci. U. R. S. S.* **28**, 321 (1940) (in English).—[illegible] following abstr.—The ratio of the soft to the penetrating component of vertical cosmic rays was reduced from 0.25 to 0.05 by placing a wooden filter of [illegible] cm. over the counter system. The 8 + 2% reduction must include all the secondary rays in equil. with the penetrating neutron component. Since the value of the equil. should not change with inclination to the vertical, the angle effect of Bernoby and Ferro (*Nature* **144**, [illegible]) provides a measure of the out-of-equil. component, which amounts to 6 out of the above 8%. The energies of the decay electrons produced by neutrons must be much smaller than previously supposed. The results of Bocciarelli (*C. A.* **34**, 2245) are erroneous, as he used a Pb filter in which the equil. intensity of secondaries is quite different from that in air. A. C. Allen

U.S.S.R. METALLURGICAL LITERATURE CLASSIFICATION

PA 36/49T67

USSR/Nuclear Physics - Cosmic Radiation Sep 48
Nuclear Physics - Particles, Elementary

"Studies of Cosmic Ray Showers Which Accompany Penetrating Particles," K. I. Alekseyeva, S. N. Vernov, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXII, No 2

Investigated formation in the stratosphere of cosmic ray showers in a lead filter 4 cm thick. Two flights were carried out with special, small-dimension sounding balloons. These permitted simultaneous counting of penetrating particles passing through 4 cm of lead in a solid angle, formed [redacted] 36/49T67

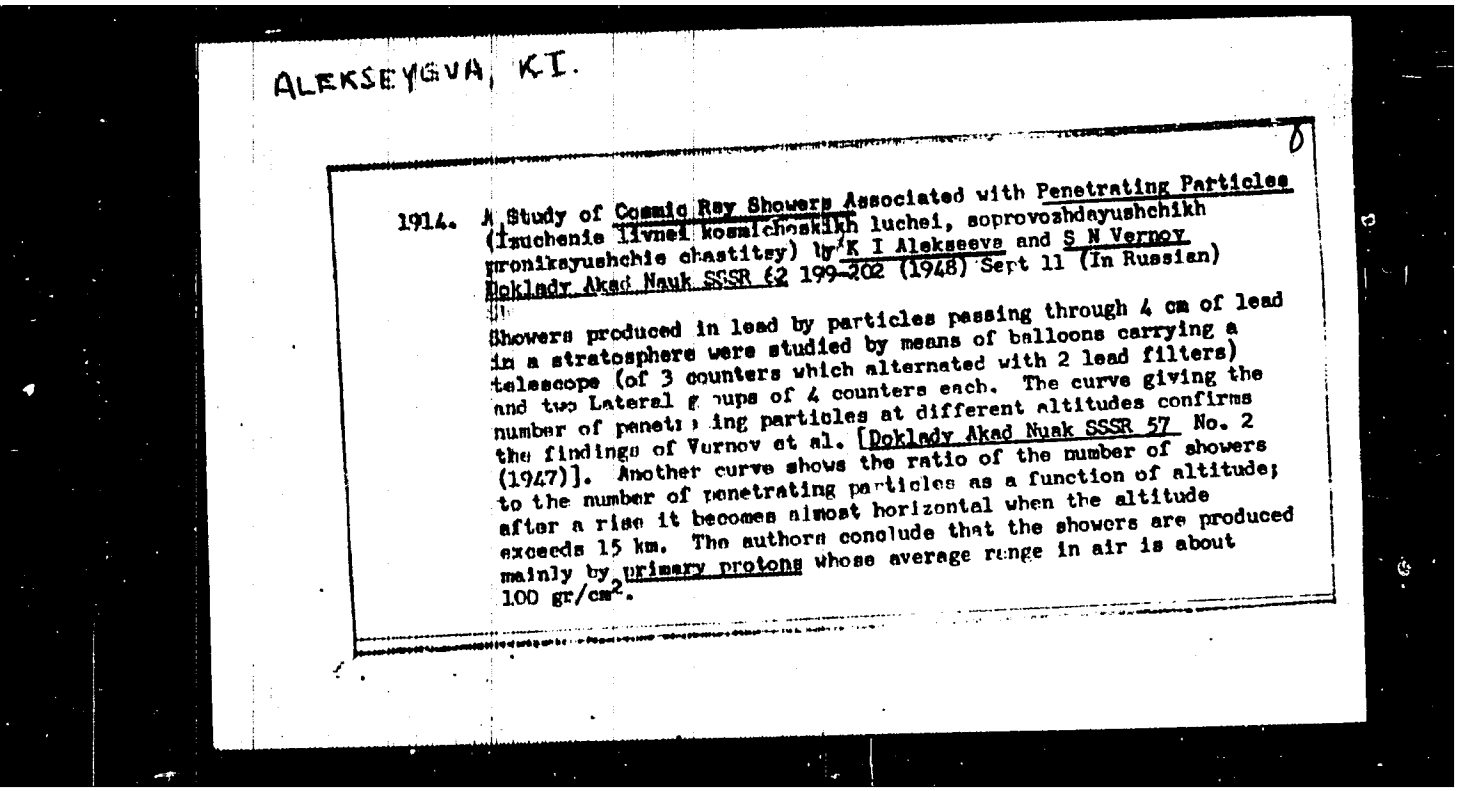
USSR/Nuclear Physics - Cosmic Radiation (Contd) Sep 48

from the counters by the telescope. Also counted are particles created by these penetrating particles in the lead, with the aid of counters, surrounding the lead on all sides. Submitted by Acad S. I. Vavilov, 13 Jul 1948.

ALEKSEYEVA, N. I.

[redacted]

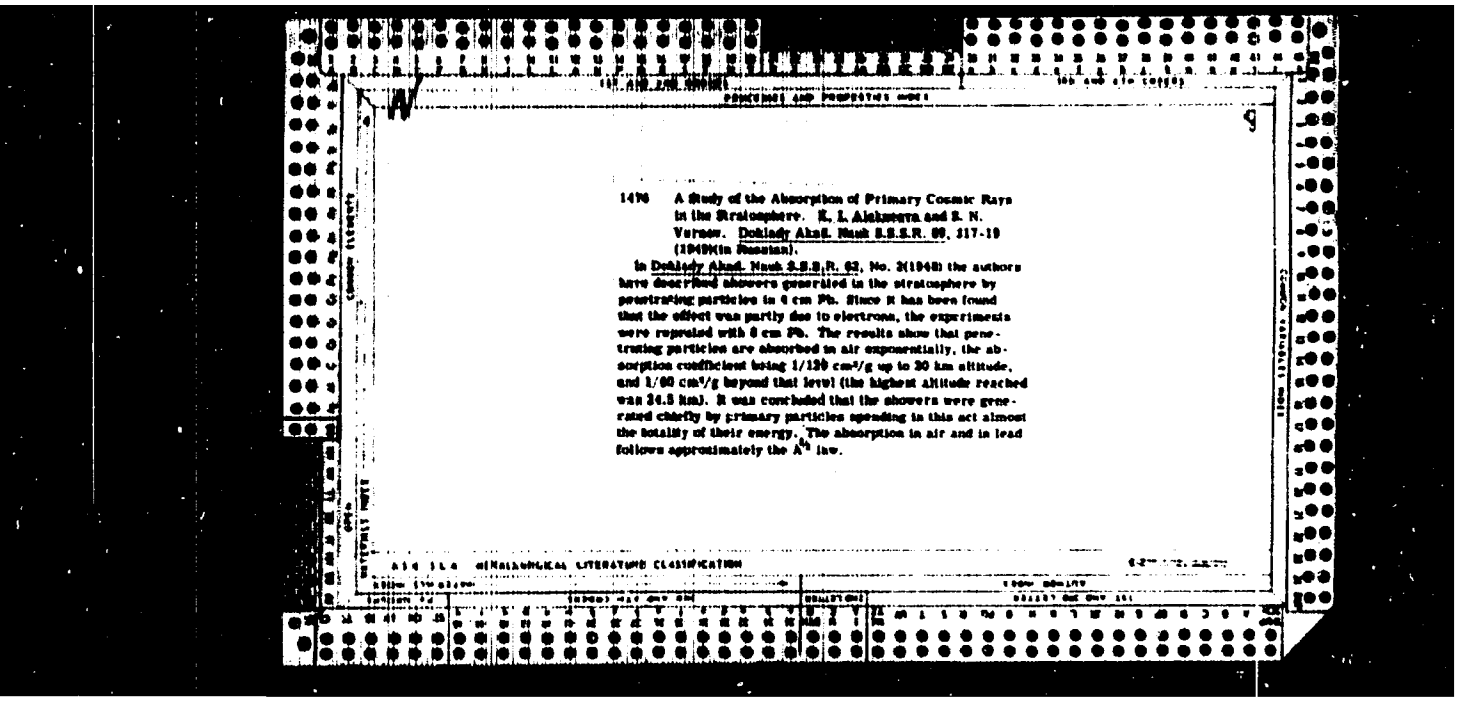
36/49T67



ALEKSEYEVA, K.I.

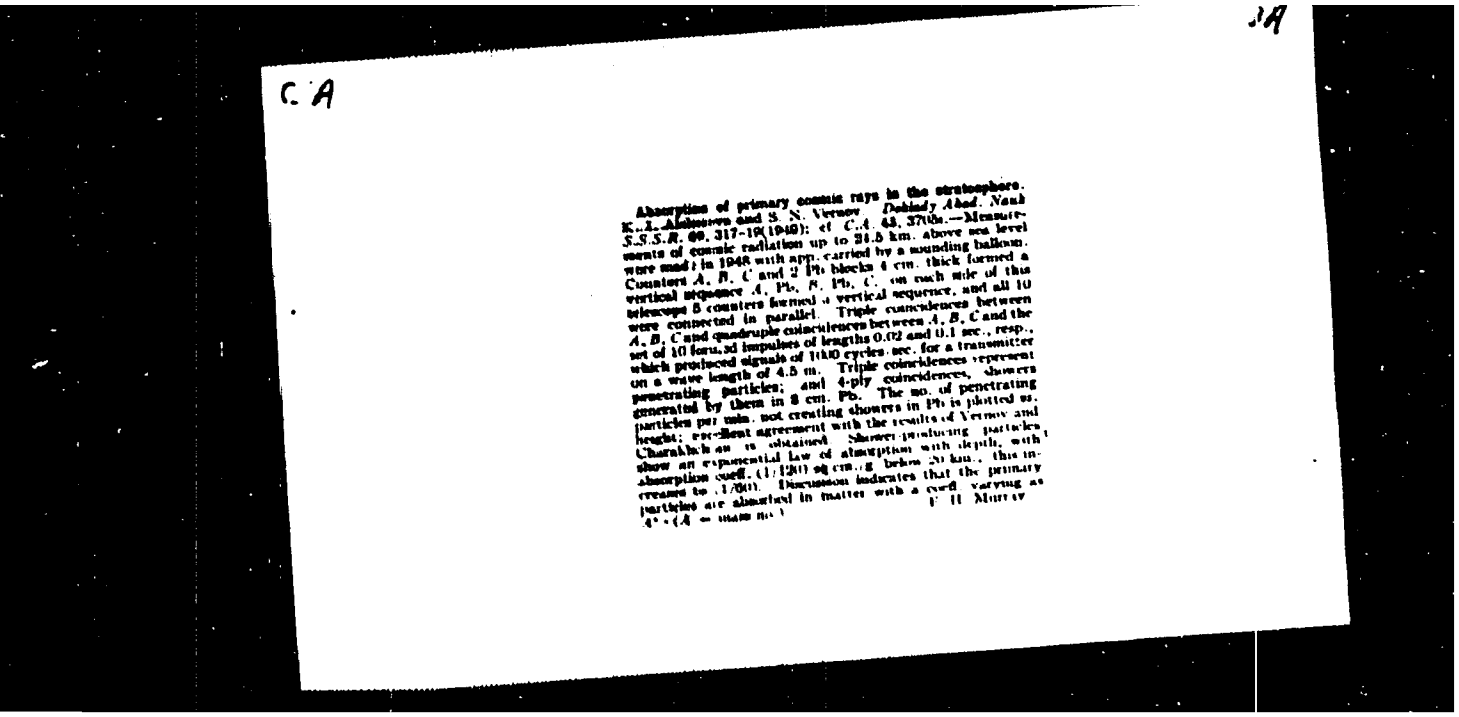
1914. A Study of Cosmic Ray Showers Associated with Penetrating Particles (Issledovanie livnei kosmicheskikh luchei, soprovozhdayushchikh proniknyushchie chastitsy) by K I Alekseeva and S N Vernov Doklady Akad Nauk SSSR 62 199-202 (1948) Sept 11 (In Russian)

Showers produced in lead by particles passing through 4 cm of lead in a stratosphere were studied by means of balloons carrying a telescope (of 3 counters which alternated with 2 lead filters) and two Lateral groups of 4 counters each. The curve giving the number of penetrating particles at different altitudes confirms the findings of Vernov et al. [Doklady Akad Nauk SSSR 57 No. 2 (1947)]. Another curve shows the ratio of the number of showers to the number of penetrating particles as a function of altitude; after a rise it becomes almost horizontal when the altitude exceeds 15 km. The authors conclude that the showers are produced mainly by primary protons whose average range in air is about 100 gr/cm^2.



1476 A Study of the Absorption of Primary Cosmic Rays in the Stratosphere. K. I. Alekseeva and S. N. Vernov. Doklady Akad. Nauk S.S.S.R. 69, 317-19 (1949)(in Russian).

In Doklady Akad. Nauk S.S.S.R. 62, No. 3(1948) the authors have described showers generated in the stratosphere by penetrating particles in 6 cm Pb. Since it has been found that the effect was partly due to electrons, the experiments were repeated with 8 cm Pb. The results show that penetrating particles are absorbed in air exponentially, the absorption coefficient being 1/120 cm²/g up to 30 km altitude, and 1/60 cm²/g beyond that level (the highest altitude reached was 34.5 km). It was concluded that the showers were generated chiefly by primary particles spending in this act almost the totality of their energy. The absorption in air and in lead follows approximately the $A^{\frac{1}{2}}$ law.



C.A

1A

Absorption of primary cosmic rays in the stratosphere. K. I. Alekseev and S. N. Vernov. *Doklady Akad. Nauk S.S.S.R.* 69, 317-19 (1949); cf. *C.A.* 43, 3708a.—Measurements of cosmic radiation up to 34.5 km. above sea level were made in 1948 with app. carried by a sounding balloon. Counters *A*, *B*, *C* and 2 Pb blocks 4 cm. thick formed a vertical sequence *A*, Pb, *B*, Pb, *C*; on each side of this telescope 5 counters formed a vertical sequence, and all 10 were connected in parallel. Triple coincidences between *A*, *B*, *C* and quadruple coincidences between *A*, *B*, *C* and the set of 10 form. 3d impulses of lengths 0.02 and 0.1 sec., resp., which produced signals of 1440 cycles/sec. for a transmitter on a wave length of 4.5 m. Triple coincidences represent penetrating particles; and 4-ply coincidences, showers generated by them in 8 cm. Pb. The no. of penetrating particles per min. not creating showers in Pb is plotted vs. height; excellent agreement with the results of Vernov and Charakhch'an is obtained. Shower-producing particles show an exponential law of absorption with depth, with absorption coeff. (1/1241) sq cm./g below 20 km.; this increases to .1/601. Discussion indicates that the primary particles are absorbed in matter with a coeff. varying as [illegible]

P. H. Murray

ALEKSEYEVA, K. I. 158T79

USSR/Nuclear Physics - Cosmic Rays 21 Nov 49
Stratosphere

"Study of the Absorption of Primary Cosmic Rays in the Stratosphere," K. I. Alekseyeva, S. N. Vernov, 3 pp

"Dok Ak Nauk SSSR" Vol LXIX, No 3

Experimental law governing absorption of primary cosmic rays is established from flights up to 25 km. Coefficient of absorption in air and in lead corresponds roughly to geometric cross sections of the nuclei. Submitted 24 Aug 49 by Acad D. V. Skobel'tsyn.

158T79

NSA

Physics

3319

INVESTIGATION IN THE STRATOSPHERE OF PROPERTIES OF PENETRATING PARTICLES OF COSMIC RADIATION. K. I. Alekseeva, S. N. Vernov, and N. M. Guskina. Doklady Akad. Nauk S.S.S.R. 80, 729-32(1951). (In Russian)

A counter-telescope designed to register shower-producing particles with ranges between 4 and 8 cm of Pb is described. The composition of cosmic radiation having these limits at 15 to 20 km altitude was found to be 1.0 to 1.5 electrons and 1.0 proton or meson/min-sterad-cm^2.

USSR/Nuclear Physics - Cosmic Rays, Penetrating 11 Oct 51

"Investigations in the Stratosphere of the Properties of Penetrating Cosmic-Ray Particles," K. I. Alekseyeva, S. N. Vernov, R. M. Grokina

"Dok Ak Nauk SSSR" Vol LXXX, No 5, pp 725-728

Describes scheme of disposition of counters and filters, altitude dependence of number of cosmic-ray particles with various flight paths in lead (4-8 cm). Discussed expts were conducted in 1947-48 in the stratosphere, on the formation of showers by cosmic-ray particles in a lead filter 4-8 cm thick. Conclude that there is a considerable number of electrons among the cosmic-ray particles possessing flight paths R between 4 and 8 cm in lead, from a comparison of the probability of formation of showers by particles with shower paths of R= 4 cm and R = 8 cm in lead. Submitted 27 Jul 51 by Acad D. V. Skobel'tsyn.

221779

ALEKSEYEVA, N. I.

221779

AUTHOR ALEKSEYEVA, K.I., GRIGOROV, N.L., PA - 2713

TITLE The Inelastic Interaction of Protons with an Energy of more than 7 BeV with Carbon- and Hydrogen-Nuclei.
(Neuprugoye vzaimodeystviye protonov s energiyey bol'she 7 BeV s yadrami ugleroda i vodoroda - Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 32, Nr 1, pp 40h-405 (U.S.S.R.)

Received 5/1957 Reviewed 6/1957

ABSTRACT The cross section of this inelastic interaction was measured in the stratosphere in an altitude of from 2o to 25 km in the geomagnetic latitude 31°, where the minimum kinetic energy of the primary protons amounts to 7 BeV and the energy of 6o°/o of all protons amounts to from 7 to 2o BeV. The measuring arrangement, i.e. the distribution of the telescope, filter, and counter is discussed. The cross section of the inelastic protons with carbon nuclei was determined by two methods. 1) From the reduction of the flow of the individual shower-forming particles which, in the case of the existence of graphite in the telescope, drop on to the lead filter. This reduction is due to inelastic acts of interaction of the protons with the atomic nuclei of the carbon. (Measurements were taken of the modification of the number of electron-nucleus showers coming out of the lead in the case of the existence of graphite in the telescope).
2) By direct measuring of the number of the electron-nucleus showers produced in the graphite.

Card 1/2

The Inelastic Interaction of Protons with an Energy of more than 7 BeV with Carbon- and Hydrogen-Nuclei. PA-2713

By method 1) the authors obtained the following values of the range and the cross section of the inelastic interaction of the protons with carbon nuclei $L_p^C = 67^{+13}_{-9}$ g/cm^2, $\sigma_p^C = 300 \pm 50$ millibarn. The necessary corrections for these values have already been taken into account. By method 2) they obtained values $L_p^C = 73 \pm 7$ g/cm^2 $\sigma_p^C = 270 \pm 30$ millibarn. The error given for these values in all cases denotes the statistical error. The authors determined the cross section of the inelastic proton-proton interaction from the difference of the number of the electron-nucleon showers recorded in paraffin and graphite and they hereby obtained the following values $L_p^H = 47^{+37}_{-15}$ g/cm^2 $\sigma_p^H = 35 \pm 16$ millibarn. This value of the cross section will probably not change by more than 10%, if the δ shower is taken into account. At present the authors are investigating the production of δ showers at sea level in paraffin and graphite. (No ill.)

ASSOCIATION Moscow State University.
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Card 2/2

ALEKSEYEVA, K.I.

20-1-18/54

AUTHOR: Alekseyeva, K.I., Brikker, S.I., Grigorov, N.L., Savin, P.D., Shcherbakov, N.A.

TITLE: Determination of the Flux of Primary Cosmic Ray Particles at 51° N. Latitude
(Opredeleniye potoka pervichnykh kosmicheskikh chastits na shirote 51° N.)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 1, pp. 71 - 74 (USSR)

ABSTRACT: On the occasion of the determination of the cross-section of the non-elastic interaction of the cosmic ray particles with the nuclei of carbon and hydrogen the authors determined the intensity of the hard components in stratosphere. These measurements made possible the determination of the flux of the cosmic particles at the border of atmosphere. The authors describe the apparatus for the measurements of the cross-section of non-elastic interaction as well as the results of the measurements of the intensity of hard components. (The results of the measurements of the cross-sections shall be published in later works). The scheme for the arrangement of the filters as well as of the counter is shown by means of a sketch. The telescope and the filters were surrounded by many hodoscopic counters for the re-

Card 1/3

Determination of the Flux of Primary Cosmic Ray Particles at 31°N. Latitude

gistration of secondary particles. Furthermore three series of telescopic counters were connected in form of a hodoscope. The impulse for the control of this apparatus was the triple coincidence in the three series of counter. All results obtained with these apparatuses were transmitted to the ground by radio. The elaboration of the measurement results obtained this way are discussed for the following cases: single particle, shower which developed outside the filter, shower in the upper part of the apparatus and shower in the lower part of the apparatus. The course of particles as a function of altitude which cause no interactions in a Pb and Al filter is shown by a diagram. Another curve shows the number of the nuclear interactions in Pb and Al filter. Another curve is the sum of the two mentioned curves, that is to say, it characterizes the total flux of the particles of the hard component at various altitudes. This flux is 2,0 particles/cm^2 mm. sterad at the border of atmosphere. In the end the results obtained are compared with those of other authors. There are 2 figures.

20-1-18/54

Determination of the Flux of Primary Cosmic Ray Particles at 31° N. Latitude

ASSOCIATION: Moscow State University im. M. V. Lomonosov
(Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova)

PRESENTED BY: D.V. Skobel'tsyn, Academician, January 15, 1957

SUBMITTED: January 12, 1957

AVAILABLE: Library of Congress

Card 3/3

ALEKSEYEVA K I

20-2-17/62

AUTHORS: Alekseyeva, K.I., Grigorov, N.L.

TITLE: The Cross Section of the Inelastic Interaction of More Than 7 BeV Kinetic Energy Protons with the Atomic Nuclei of Carbon (Secheniye neuprugogo vzaimodeystviya protonov s kineticheskoy energiyey bol'she 7 BeV s atomnymi yadrami ugleroda)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 2, pp. 259 - 262 (USSR)

ABSTRACT: The present paper gives the data of the measurement of the cross section of the inelastic interaction of protons with carbon nuclei on the geomagnetic latitude 51° in the stratosphere in the domain of those energies for which the authors earlier found a small non-elasticity of the collision with light nuclei. The apparatus for the measurement of this inelastic interaction consisted of a telescope surrounded by many hodoscopic counters. 80 % of the proton current had a kinetic energy of more than 7 BeV and 3/4 of these had the average energy ~ 12 BeV. The cross section of the non-elastical interaction proton-carbon nucleus was determined by 2 methods:

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20-2-17/62

The Cross Section of the Inelastic Interaction of More Than 7 BeV Kinetic Energy Protons with the Atomic Nuclei of Carbon

1.) By the method of reducing the flow of the shower-forming component during the passage through graphite: The method does not require the knowledge of the true intensity of the flow of the shower-forming particles and of the true number of the interactions with lead. For the range obtained by this method in 20-25 km altitude resp. for the interaction of the inelastic interaction of the protons and the carbon nuclei

$L_p^C = 63^{+12}_{-9}$ g.cm^{-2} resp. $\sigma_p^C = 315 \pm 50$ mb is found.

2.) By the method of direct observation of the inelastic interaction in a graphite filter (from the number of showers proceeding from the mesotrons produced in graphite) the authors determined the values $L_p^C = 76 \pm 7$ g.cm^{-2}, $\sigma_p^C = 264 \pm 24$ mb. Suppositions on the cause of the differences between the values found by both methods are given.

Conclusions: The here-measured cross section of the inelastic interaction of the protons of the mean energy $\sim$ 12 BeV with the carbon nuclei amounts to 315 $\pm$ 50 mb, thus it agrees within the

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The Cross Section of the Inelastic Interaction of More Than 7 BeV Kinetic Energy Protons with the Atomic Nuclei of Carbon

limits of error with the geometric cross section of the carbon atom. There are 2 figures, 2 tables, 9 references, 3 of which are Slavic.

ASSOCIATION: Moscow State University imeni M.V. Lomonosov
(Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova)

PRESENTED: January 15, 1957, by D.B. Skobel'tsyn, Academician

SUBMITTED: January 12, 1957

AVAILABLE: Library of Congress

ALEKSEJEVA, K.I.

AUTHORS: Alekseyeva, K. I., Grigorov, N. L. 20-4-13/52

TITLE: The Cross Section of non-Elastic Proton-Proton Interaction at Proton Energies Exceeding 7 BeV. (Secheniye neuprugogo vzaimodeystviya proton-proton pri energiyakh protonov bol'she 7 BeV).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 4, pp. 593-596 (USSR).

ABSTRACT: First a brief report is given on 3 previous works dealing with this subject. The authors applied the data obtained from flights with two devices with lead filter and one apparatus without lead filter for the determination of the cross-section referred to in the title. On order to make the conditions of registration of the showers developing both in paraffin and graphite approximately equal, the authors used graphite in form of powder. The necessary corrections of the measurements are discussed as well. The authors computed the cross-section of inelastic proton-proton interaction from the ratio of the streams of the individual shower-developing particles, when paraffin and graphite are present in the telescope: $(I_{paraffin}/I_{graphite}) = e^{-2,8/L_p^H}$. In this case L_p^H denotes the range of inelastic proton-proton. interaction. The values of this ratio obtained by means of va-

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The Cross-Section of non-Elastic Proton-Proton Interaction at 20-4-13/52
Proton Energies Exceeding 7 BeV.

rious apparatus and various methods, are shown in a diagram and the corrections taken into account with this operation, are enumerated. The values $L_p^M = 51^{+2.5}_{-1.8}$ g.cm^{-2} and $\sigma_p^M = 32 \pm 1.0$ mb, are obtained according to the all data given in the table by taking the statistical weights for the range and the cross-section of the inelastic interaction proton-proton into account. In conclusion these results are still compared with those obtained by other authors.
There are 1 figure, 1 table, and 5 references, 3 of which are Slavic.

ASSOCIATION. State University imeni M. V. Lomonosov, Moscow (Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova).

PRESENTED. June 29, 1957, by D. V. Skobel'tsyn, Academician.

SUBMITTED. June 28, 1957.

AVAILABLE. Library of Congress.

Card 2/2

21(0)
AUTHORS: Alekseyeva, K. I., Grigorov, N. L. SOV/56-35-3-7/6

TITLE: Inelastic Interaction of Protons of Cosmic Radiation With Kinetic Energies Above 7 BeV With Carbon- and Hydroge Nuclei (Neuprugoye vzaimodeystviye protonov kosmicheskikh luchey s kineticheskoy energiyey bol'she 7 BeV s yadrami ugleroda i vodoroda)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 3, pp 599 - 611 (USSR)

ABSTRACT: In the present paper the authors give a report on the results obtained by mensuring the effective cross sections of inelastic interactions of cosmic primary particles (protons) with H- and C-nuclei. (Compare also references 5-8), as well as on results obtained when determining the number of particles produced by such processes. Measurements were carried out in the stratosphere in an altitude of 20-25 km at a geomagnetic latitude of 31°N. Two methods were used for determining cross sections: In one case a telescope was used which contained a lead filter as well as the graphite- and

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paraffin filters to be investigated, and in the other a hodoscope-system of counters surrounding the telescope and the filters (cf.Refs 1 and 2); in Chapter 2 of the paper the two systems are described in detail. Chapter 3 deals with the determination of numbers and the inelastic cross sections of proton-nucleus interaction (carbon) by using method 1; table 1 contains the measuring-results obtained with respect to range and p-C cross sections for various atmospheric densities (53,0, 46,7, 25,0 g/cm^2) with and without graphite in the telescope (C:16,8 g/cm^2). For an average value of 33,7 g/cm^2 of the atmosphere a value for the range $L_p^C = 63^{+12}_{-9}$ g.cm^{-2} and the cross section σ_p^C = 319 ± 50 mb is obtained. Chapter 4 describes the determination of L and σ according to method 2, conditions otherwise being equal: Results:

$L_p^C = 76 \pm 7$ g.cm^{-2}; $\sigma_p^C = 264 \pm 24$ mb.

Chapter 5 deals with the inelastic cross sections of p-, interactions. Results:

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Inelastic Interaction of Protons of Cosmic Radiation With Kinetic Energies Above 7 BeV With Carbon- and Hydrogen Nuclei SOV/56-35-3-7/61

$\Lambda_p^H = 51^{+25}_{-12}$ g.cm^{-2}; $\sigma_p^H = 32 \pm 10$ mb. In chapter 6, finally, the number of particles in showers is discussed; (p-C and p-p interactions). For $E_{...} \sim 20$ BeV an average number of particles of 5,4 (p-p) and $4,2 \pm 0,5$(p-C) was found. (See also table 4). In conclusion, the authors thank S.I.Brikker, F.D.Savin, N.A.Shcherbakov, M.M. Dubrovin, and V.A.Sobinyakov who took part in the work. There are 4 figures, 4 tables, and 22 references, 13 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: April 8, 1958

Card 3/3

APOLLOV, B.A., ALEKSEYEVA, K.I.

Forecasting the level of the Caspian Sea. Trudy Okean. kom. 5:63-78. '59. (MIRA 13:6)
(Caspian Sea--Hydrography)

21(7) SOV/56-37-2-8/56

AUTHORS: Alekseyeva, K. I., Grigorov, N. L.

TITLE: Heavy Nuclei Flux in Primary Cosmic Radiation at a Geomagnetic Latitude of 31° N

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 2(8), pp 380-388 (USSR)

ABSTRACT: The flux of primary heavy particles in the stratosphere (25-27 km altitude, atmosphere: 24 g/cm^{-2}) was measured (September 18, 1954) with an apparatus consisting of a telescope surrounded by hodoscope counters and two pulse ionization chambers placed between the trays of the telescope counters (Geiger-Müller). A scheme of this device, which transmitted its results to the earth radiographically, is shown in figure 1. An example for the recorded pulses from chamber and hodoscope is given by the reproduction of part of a film, and is discussed in detail. Figure 3 shows the spectrum of the ionization pulses of individual particles in an altitude of 1 km. A detailed chapter further deals with the evaluation of experimental data; the result is given by a table:

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Heavy Nuclei Flux in Primary Cosmic Radiation at a Geomagnetic Latitude of 31°N

	$Z = 2$	$Z > 2$
Number of recorded individual particles (atmosphere: 24 g/cm^{-2})	317±18	10±3.2
Correction with respect to a background of simply charged particles	-90±22	—
Correction respecting the number of nuclei producing δ-showers	+45±6	—
Number of primary heavy nuclei without nuclear interactions	272±29	10±3.2
The same in cm^{-2}min^{-1}steradian^{-1}	0.154±0.016	0.0056±0.0018
Coefficient of the absorption of heavy nuclei due to nuclear interaction in the material of the device $e^{-x/L}$ (x = absorber depth, L = inelastic interaction range)	0.815	0.740

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Heavy Nuclei Flux in Primary Cosmic Radiation at a Geomagnetic Latitude of 31°N

	Z = 2	Z > 2
The same in the air layer above the device	0.565	0.400
The heavy particle flux I_Z^0 on the boundary of the atmosphere in $cm^{-2}.min^{-1}.steradian^{-1}$	0.335±0.035	0.019±0.006
I_Z^0/I_0 in % (I_0 = total particle flux)	16±2	~1

In the text these data are mostly mentioned once more and discussed. V. F. Grushin took part in this work. There are 6 figures, 1 table, and 11 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: March 7, 1959

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000101010003-5"

21(7) SOV/56-37-3-2/62

AUTHORS: Alekseyeva, K. I., Brikker, S. I., Grigorov, N. L., Murzin, V. S., Shvili, F. D.

TITLE: Investigation of the Production of π^0-Mesons in the Stratosphere in the Case of Interaction of Protons and α-Particles of Cosmic Rays With Carbon Nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 3(9), pp 596 - 603 (USSR)

ABSTRACT: In the present paper the authors describe the carrying out of and the results obtained by experiments serving the purpose of determining the average π^0-energy at an altitude of 25 km. The experiments themselves had taken place on September 2c, 1954 at a geomagnetic latitude of 31° N; measurement data were transmitted to the earth radiotelegraphically. For the purpose of determining $\overline{E}_{\pi^0}$, the ionization in the maximum of the γ-cascades occurring in π^0-decay was measured. The average primary energy of the protons $\overline{E}_{0p}$ was 2o Bev, that of the α-particles $E_{0\alpha}$ amounted to 4c Bev. The experimental arrangement (schematically shown by figure 1) consisted essentially of pulse ioni-

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Investigation of the Production of π^0-Mesons in the Stratosphere in the Case of Interaction of Protons and α-Particles of Cosmic Rays With Carbon Nuclei

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ization chambers and a hodoscope. The counters were Geiger-Mueller counters connected in triple coincidence. The entire arrangement is described in detail. The results are shown in form of a table and by figure 2. Figure 2 in three diagrams shows the number of showers N, in which the given ionization was found, as a function of J/J_0 in the lower chamber (II). J_0 denotes the probable ionization of a relativistic simply charged particle, J the ionization of the given particle. The uppermost diagram contains the range $0<(J/J_0)_I<30$, the middle one $3.0<(J/J_0)_I<7.5$, and the third $(J/J_0)>7.5$. The unbroken lines refer to measurements carried out with the help of a graphite filter, the dotted lines show the spectrum without such a filter. The average number of the electrons $\bar{\nu}$ in the maximum of the γ-cascade is calculated by means of formula (2). Results:

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Investigation of the Production of π^0-Mesons in the Stratosphere in the Case of Interaction of Protons and α-Particles of Cosmic Rays With Carbon Nuclei SOV/56-37-3-2/62

	Primary particles: protons	α-particles
J/J_0 in chamber I	0 - 3.0	3.0 - 7.5
$\bar{\nu}$	11.4 $\pm$ 3.5	32.2 $\pm$ 23.0
Number of electrons in the avalanche N_{max}	26 $\pm$ 8	73 $\pm$ 52
$\bar{E}_{\pi^0}$ [ev]	$(2.1\pm0.6)\cdot10^9$	$(5.8\pm4.2)\cdot10^9$
$(\bar{E}_{\pi^0}/\bar{E}_0)\cdot100$ [%]	10$\pm$3	14$\pm$10

For the determination of N_{max} formula (1) by Tamm and Belen'kiy is used. For the given primary energies of protons and α-particles (20 and 40 Bev respectively) the following values are obtained for the energy fraction k contributed by these particles for π^0-production: $k_p = (10\pm3)\%$ and $k_\alpha = (14\pm10)\%$.

L. G. Landsberg participated in this work. The authors thank I. P. Ivanenko for discussions. There are 2 figures, 1 table, and 10 references, 7 of which are Soviet.

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Investigation of the Production of π^0-Mesons in the Stratosphere in the Case of Interaction of Protons and α-Particles of Cosmic Rays With Carbon Nuclei SOV/56-37-3-2/62

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: March 7, 1959

Card 1/4

APOLLOV, B.A.; ALEKSEYEVA, K.I.

Sun and hydrometeorological processes in the European U.S.S.R. Astron.sbor no.3/4:130-136 '60. (MIRA 14:11)

1. Institut okeanologii AN SSSR, Moskovskiy gosudarstvennyy universitet.

(Hydrometeorology)

ALEKSEYEVA, K.I., GAMKRELIDZE, L.L., ZHDANOV, G.B., ZAMCHALOVA, E.V., SHCHERBAKOVA, M.I., and TRETYAKOVA, M.I.,

"Study of Composition of Primary Cosmic Radiation at an Altitude of 320 Kilometers,"

report presented at the Intl. Conference on Cosmic Rays and Earth Storms, Kyoto, Japan, 4-15 Sept 1961.

ALEKSEYEVA, K.I., GAKHUA, L.L., ZHDANOV, G.B. TRETYAKOVA, M.I.,

"High Energy Nuclear Interaction with Isoptopic Distribution of Generated Particles,"

report presented at the Intl. Conference on Cosmic Rays and Earth Storms, Kyoto, Japan, 4-15 Sept 1961.

ALEKSEYEVA, K.I.; ZHDANOV, G.B.; ZAMCHALOVA, Ye.A.; TRET'YAKOVA, M.I.; SHCHERBAKOVA, M.N.

Study by the photographic emulsion method of the interaction between 8.7 Bev protons and quasi-free nucleons. Zhur. eksp. i teor. fiz. 40 no.6:1625-1637 Je '61. (MIRA 14:8)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR.
(Photography, Particle track)
(Protons)
(Nucleons)

ALEKSEYEVA, K. I., ZHDANOV, G. B., TRETYAKOVA, M. I., TSYTOVICH, V. N., and SHCHERBAKOVA, M. N.

"Ionization momentum dependence for electrons in the ultra-relativistic region"

Fourth International Colloquium on Photography (Corpuscular) - Munich, West Germany, 3-8 Sep 62

S/560/62/000/012/001/014
I046/I246

AUTHORS: Alekseyeva, K.I., Gubuniya, L.L., Zhdanov, G.B., Zanchalova, Ye.A., Shcherbakova, N.M. and Tret'yakova, K.I.

TITLE: Investigation of the primary cosmic radiation composition at an altitude of 320 km

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli, no. 12, Moscow, 1962, 6-15

TEXT: The automatic apparatus whose design was reported at the International Conference on Nuclear Photography (1960) is applied to impulse and ionization measurements of middle-weight cosmic nuclei. In multiple scattering measurements, the time required to measure one 10 mm trail is 7 minutes; in ionization measurements, 30 minutes per trail are required. This is at least 5 times as fast as in visual measurements. The resolution of the apparatus in ordinary circumstances is sufficient to separate between the Li, Be, B and C, N, O groups. Instrumental errors, however, reduce the accuracy of measuring trail discontinuities by up to 30-40% as compared with visual measurements for a given

Card 1/2

Investigation of the primary cosmic radiation...

trail length. There are 10 figures and 1 table.

SUBMITTED: August 15, 1961

Card 2/2